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COMPARISONS OF THREE METHODS OF READING INSTRUCTION.

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THE RESULTS OF THE CONTINUATION OF USOE PROJECT 2745 WHICH EVALUATED THE READING ACHIEVEMENT OF STUDENTS TAUGHT BY THE INITIAL TEACHING ALPHABET (ITA), THE DIACRITICAL MARKING SYSTEM (DMS), AND A TYPICAL BASAL READING SERIES (TO) ARE REPORTED. A NEW SET OF DMS MATERIALS WAS DEVELOPED AND USED IN SEVEN FIRST GRADES. THE READING ACHIEVEMENT OF THESE PUPILS WAS COMPARED WITH THAT OF PUPILS DURING THE PREVIOUS YEAR. TWENTY-ONE CLASSES OF SECOND GRADERS PARTICIPATED IN THE 140-DAY EXPERIMENT. READINESS TESTS, INTELLIGENCE TESTS, AND ORAL AND SILENT READING ACHIEVEMENT TESTS WERE ADMINISTERED. ANALYSIS OF COVARIANCE, ANALYSIS OF VARIANCE, CORRELATION, AND CHI SQUARE WERE USED TO ANALYZE THE DATA. NO METHOD WAS SUPERIOR FOR BRIGHT OR DULL STUDENTS OR FOR BOYS OR GIRLS. THE COMPETENCE OF THE TEACHER WAS IMPORTANT, ESPECIALLY IN THE FIRST GRADE. INTELLIGENCE TEST SCORES WERE BETTER PREDICTORS OF READING SUCCESS THAN WERE READINESS TEST SCORES. THERE WAS NO CORRELATION BETWEEN READING ACHIEVEMENT AND CLASS SIZE. ADDITIONAL RESULTS, CONCLUSIONS, TABLES, AN APPENDIX, AND REFERENCES ARE INCLUDED. (BK)

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COMPARISONS OF THREE METHODS OF READING INSTRUCTION

(ITA, DMS, TO)

Results at the End of the Second Grade

December 1966

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COMPARISONS OF THREE METHODS OF READING INSTRUCTION

Project No. 3050
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Edward Fry

December, 1966

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INTRODUCTION

This study is an attempt to investigate the effectiveness of three methods of beginning reading instruction: The Initial Teaching Alphabet (ITA), The Diacritical Marking System (DMS), and a typical Basal Reading Series printed in traditional orthography (TO).

Background

This study is a continuation of USOE Project 2745 which compared these three methods in the first grade. It followed the same population through the second grade with testing being done in the middle and at the end of the year.

Last year's study (USOE 2745) was one of the 27 first grade studies sponsored by the U.S. Office of Education and coordinated by Guy Bond and Gerald Dykstra of the University of Minnesota. This present study is one of the 14 studies continuing for a second year working in cooperation with the same University of Minnesota coordination center. The measurement instruments used in both studies were selected at a joint meeting of the project directors. Thus, this study used the same instruments as the other studies coordinated by the University of Minnesota center.

All of the raw statistical data is being submitted on punch cards, with standardized column use, to the University of Minnesota coordinating center and anyone wishing this raw data may order copies of these cards at cost from the coordinating center.

In our last year's study there were 7 first grades in each of the three treatment methods. The ITA materials used were those written by Albert Mazurkiewicz and Harold Tanyzer known as the "Early to Read ITA Program." The TO materials were the basal reading series authored by William Sheldon and generally known as the Sheldon Readers or the Allyn and Bacon Series. The DMS materials were the same Sheldon Readers with diacritical marks added to make each word as phonetically regular as possible. For further information on the Diacritical Marking System, the reader is referred to last year's report or the May 1964 issue of Elementary English which contained the author's article, "A Diacritical Marking System to Aid Beginning Reading Instruction."

At the end of the first grade, in general there were no differences between children taught by any of the three methods. More specifically there were no statistically significant differences on scores of the sub-tests of the Stanford Achievement Battery or the Gilmore Oral Reading

Test favoring any of the populations. The only exception to this was when the Stanford Spelling sub-test was scored not allowing for ITA spelling, then, the ITA children were inferior. Two less formal measures did show significant differences, the Fry Phonetically Regular Words Oral Reading Test significantly favored the ITA reading population, and a writing sample showed that ITA trained children wrote longer stories but with a greater percentage of errors (writing mechanics). However, writing was not a carefully controlled factor in the study.

Purpose of This Study

The chief purpose of this year's study was to see if any differences would show up at the end of the second year. One of the criticisms made of last year's study by proponents of the ITA was that all testing was done in TO. The author did not feel that this was a serious criticism as an overwhelming majority of children in both special alphabets, ITA and DMS, were reading supplementary material printed in TO with ease. However, the results of this year's study should definitely answer that criticism as all children had terminated special alphabets by the end of the second year and had many exposures to TO print materials.

A second major purpose of this study was to develop a new set of DMS materials and try them out on 7 new first grades. These children were then compared with last year's first grades. As was stated earlier in the first year the DMS pupils read Sheldon Readers with an overprint of diacritical marks.

In the Sheldon series the phonic elements are not introduced in a systematic manner or in order of complexity. It was felt that a more orderly procedure might greatly facilitate the acquisition of the reading skills.

Therefore, the second year an entirely new set of materials was prepared which attempted to introduce phonetic complexity with some degree of systematization.

Review of Related Research

Basically, there seems to be a great divergence between the early studies coming out of Britain done by Downing and later studies done in both the United States and Britain.

The Downing studies which represent English populations tested in the Spring of 1962 and 1963, give glowing and highly significant differences favoring the ITA population over the control group in TO (Traditional Orthography).

Downing had some curious ways of reporting research statistics. For example, he cited as evidence of ITA superiority the fact that more children in the ITA group had completed more primers than children in the TO group. At the end of the 2nd year of instruction of 306 ITA pupils 53.6% were beyond Book 5, while in the control group of 610 TO pupils only 15.6% of the pupils were beyond Book 5 (1). While interesting, completing a book is not always the same as having acquired any given level of reading ability.

A typical Downing finding and statement would be as follows:

> ITA is a more reliable code for young beginners, and it seems to be this greater regularity which has caused the pupils learning to read and write with ITA in our experiment to show superiority in word building. For instance, at the end of the first year, the mean score for the ITA group was 19 test words on the ITA version of the Schonell Graded Word Reading Tests, whereas the mean score for the t.o. group was only 5 test words on the same reading test in t.o. At the beginning of the fifth term (six months later) the means scores were 37 test words read correctly in the ITA group and 11 in the t.o. group. (1)

Elsewhere Downing reports that even after the ITA group had transferred to TO and both groups were tested in TO on the Neale Analysis of Reading Ability, scores in Accuracy, Comprehension, and Rate continued to favor the ITA taught children (3).

In addition to this statistical superiority, Mr. Downing claimed that it even transcended differences in test problems caused by the unavailability of ITA tests. He told the 1963 Convention of the International Reading Association (1).

> "We have recently tested all the experimental ITA pupils in seven classes on their ability to read *the conventional alphabet and spelling*, although not more than 40% of them had been taken off ITA books by their teachers at this time....The most important fact which emerges from these tests is that the ITA group achieved significantly higher scores for accuracy in comprehension in reading *the conventional alphabet and spelling*." (Downing's italics)

This statement was almost immediately refuted by Mazurkiewicz's result in a Ford Foundation financed study reported in the September 1964 issue of *The Journal of the Reading Specialist* that "raw scores from the total population on the California Reading Test as noted in Table 1 suggest that no difference in reading achievement (TO basis) between the populations exist ." (8)

U.S.O.E. First grade studies Probably the largest study involving the ITA was the recently sponsored U.S. Office of Education First Grade Project. Five of the twenty-seven independent investigators chose to compare ITA with the basal approach. The same investigators also sometimes used a third method. Like the other twenty-seven first grade investigators, these five ITA investigators also agreed to use the Stanford Primary

Achievement Test with all pupils and to give the Gilmore Oral Reading Test and several other oral reading tests to a sub-sample from each population. These investigators also agreed to use several controls to make their studies more comparable; for example, they agreed to have 140 days training time, common I.Q. and reading readiness tests, and to have not less than 7 first grade classrooms in each of the methods investigated.

TABLE 1

TOTAL READING RESULTS FOR THE EXPERIMENTAL AND CONTROL POPULATIONS USING TO STANDARDIZED TESTS TOTAL MEAN RAW SCORES (MAZURKIEWICZ 1964) (8)

	ITA	TO
California Reading Test Lower Primary	59.60	61.15
California Reading Test Upper Primary	41.11	41.29

These five investigators were Harry Hahn of the Oakland Schools in Pontiac, Michigan (5); Robert Hayes and Joseph Nemeth of the Department of Public Instruction of the State of Pennsylvania (6); Harold Tanyzer and Harvey Alpert of Hofstra University (14); Albert

Mazurkiewicz of Lehigh University (9); and Edward Fry of Rutgers University (3). All investigators used the Mazurkiewicz and Tanyzer (Pitman Publishing Co.) (7) materials except Hahn who used a variety of British primers.

Though it is impossible to give all of the research findings from these studies in such a short article, Table 2, giving the raw scores on the Stanford Achievement Test (paragraph meaning) showsthat there was no difference between ITA and basal readers in four of the five studies. Interestingly enough, Harold Tanyzer, who was the only one to find a difference favoring ITA, conducted another study of a very similar nature during the same year for the New York State Department of Education and found no difference between the ITA and the TO basal reading group (13).

To quote directly from Tanyzer, New York State study's conclusion:

> "Only one of the hypotheses of this study was amenable to statistical treatment at the conclusion of the first year of this study, and that dealt with the question of whether any significant differences would occur on the subtests of the Stanford Primary Reading Test between those children taught using the i/t/a/ medium, and those being taught by traditional orthography. The statistical results suggest that no significant differences occur...." (13)

TABLE 2

STANFORD ACHIEVEMENT TEST PARAGRAPH MEANING RAW SCORES OF 6 STUDIES COMPARING ITA AND TO TAUGHT POPULATIONS AFTER 1 YEAR OF INSTRUCTION

Study	ITA	Basal TO	N
Hahn - Oakland, Mich.	21.5	20.9	885
Mazurkiewicz - Lehigh	20.6	21.1	730
Hayes - Pennsylvania	21.0	19.8	365
Fry - Rutgers	17.6	20.4	393
Tanyzer - USOE Study	23.1	16.4	656
Tanyzer - N.Y. State Study	21.4	21.4	102

Table 3, showing the accuracy scores from the Gilmore Oral Paragraphs Reading Test used on a sub-sample from each population (usually 40 or more randomly selected pupils from each group), shows again that there is no significant difference between ITA and the TO basal series in all but Tanyzer's study.

TABLE 3

GILMORE ORAL READING TEST ACCURACY SCORES IN GRADE LEVEL COMPARING ITA AND TO TAUGHT POPULATIONS AFTER 1 YEAR OF INSTRUCTION

	ITA	Basal TO
Hahn	2.8	3.0
Mazurkiewicz	2.2	2.6
Hayes	2.6	2.3
Fry	2.7	3.1
Tanyzer - USOE Study	3.6	2.3

It should be stated that all of this testing was in the TO medium. This conceivably could be some handicap to ITA pupils, as all of them had not yet had formal instruction in transfer to TO, though there was some evidence that most of the pupils could read TO to some extent. This problem will tend to vanish as we look at some of the second year studies.

For those interested in a typical research study showing all of the sub-test scores on the Stanford Achievement Test, we have included a Table from Dr. Mazurkiewicz' U.S.O.E. First Grade Study (9).

TABLE 4

STANFORD ACHIEVEMENT TEST, PRIMARY I, FORM X RESULTS ON THE ITA AND TO POPULATIONS AT THE END OF 140 DAYS INSTRUCTION BOTH POPULATIONS WERE TESTED IN THE TO MEDIUM (MAZURKIEWICZ 1965) (9)

	ITA N=385		TO N=345		
Stanford Achievement Test Primary I, Form X	M.	S.D.	M.	S.D.	t test
Word Reading	22.3	7.89	21.9	7.25	0.23
Paragraph Meaning	20.6	10.50	21.1	9.31	0.30
Vocabulary	20.7	6.62	22.5	6.64	1.08
Spelling	9.2	6.22	13.5	5.84	4.49*
Word Study Skills	36.4	10.82	39.2	9.45	0.98

*significant at the 1 per cent level

Most of these five studies also analyze the results in terms of I.Q. differential, and they did not note any differences between ITA and TO for bright, average, or dull children. Nor was there any significant difference favoring either method based on sex or socio-economic status.

The one test in the U.S.O.E. study which rather consistently showed a difference favoring ITA was the Phonetically Regular Words Oral Reading Test developed by Edward Fry for all of the twenty-seven projects. Each of the five studies showed ITA students as scoring higher on this oral word reading test.

Second and third year results. When we come to longer term studies, the test results tend to be similar to those reported above. Mazurkiewicz reported in the October 1965 issue of the Journal of the Reading Specialist that at the end of the second year, when most students would have transferred out of ITA, there was still very little difference in reading achievement between the ITA group and the TO group (10).

TABLE 5

SECOND YEAR END SCORES ON THE CALIFORNIA READING TEST UPPER PRIMARY
(MAZURKIEWICZ 1965) (10)

	ITA N=387		TO N=803	
	Raw Score	Grade Score	Raw Score	Grade Score
Vocabulary	36.4	3.7	34.8	3.6
Comprehension	33.2	3.5	34.2	3.6

A three-year ITA - TO study has recently been completed in England by Terence Swales, at Reading University (masters thesis under M. Vernon). Swales concludes, "Children taught by ITA for three years were neither superior nor inferior in reading achievements to those taught by TO from the onset." He also found that "ITA produced neither more nor less backward readers (remedial) than TO." Like the U.S. studies, he did not find any differences based on I.Q. level or sex (12).

In an unpublished paper delivered at the Educational Records conference in October 1966, Harold Monson reported that at the end of the second year, 354 pupils taught by the ITA scored 3.0 on the Stanford Paragraphs Meaning, while 607 students taught by TO scored 2.9 (grade score) in the Newburgh, N. Y. schools (11).

METHOD

The beginning reading instruction methods for each of the three first grade groups was given in last year's report in detail. Basically, the teachers had several in-service sessions and were instructed to adhere to the publisher's manual as closely as possible. In addition, the DMS teachers were given instructions for making charts and gradually introducing phoneme-grapheme correspondences with and without marks. For example, short vowels were introduced on a chart without marks according to the DMS system and later, the long vowels with marks were introduced.

Second Grade Pupils

During the second year, we had difficulty with children moving and the schools assigning children to various classes rather than holding the classes together. However, most of the ITA pupils were either held together as a whole class or at least those not yet at the transition stage were held together. Four of the seven ITA classes were held intact with the same teacher in second grade as in first grade. Most of the students in the other three ITA classes who had not reached transition were given ITA materials by their new second grade teacher until they could easily make a transition. The TO and DMS classes were treated as were the regular second grades in their school with very little continuation of DMS materials. There seemed to be no problem in dropping DMS materials as most of the children were reading unmarked supplementary materials at their respective levels by the end of first grade.

New First Grade Pupils

Seven new DMS first grades were started as part of this study. These students used materials prepared by the project personnel. Three large primers were written which gradually introduced phoneme-grapheme correspondences. For example, the first primer used only a few consonants and one short vowel for the first few pages, then it gradually introduced most of the consonant sounds and all of the short vowel sounds. The second primer (all primers being considerably longer than basal series preprimers) introduced long vowels and some consonant digraphs, while the third DMS primer introduced most of the rest of the common phoneme-grapheme correspondences. Each primer had an accompanying student workbook and teacher's manual. Sample pages of the specially prepared DMS primers can be found in the Appendix.

This gradual introduction of phoneme-grapheme correspondences is sometimes called the "linguistic approach," but the term "linguistic approach" also means other things to other people.

The new seven first grades took the same IQ and reading readiness tests as did the preceding year's 21 first grades; namely, the Pintner Cunningham Primary Test (IQ), The Metropolitan Readiness Tests, Form A, and the Murphy Durrell Diagnostic Reading Readiness Test, Revised Edition.

The scores on these tests are reported in the Appendix Tables. Generally, they found that the children in this group scored a little better than did last year's children, so an analysis of covariance design was used holding IQ constant when a comparison was made between these new 7 first grades and last year's three methods (7 classrooms each), and when comparing results on the Stanford Achievement Test and other measures used at the end of the first grade. The common training time of 140 instructional days was adhered to with all first grades.

Second Grade Testing at Mid-Year and End

The Stanford Achievement Test, Primary I was given to the second grade children in December, and the Stanford Achievement Test, Primary II was given in May. May testing also included several oral reading tests, a reading habits inventory, and a writing sample. These will be discussed further in the Results section of this report.

Summary of Methods

The first part of this study was to follow the 21 first grades started last year in ITA, DMS, and TO through the second grade and test them in December and May.

The second part of this study was to start 7 new first grades using a new DMS system or rather new materials and to compare the results of these 7 first grades with last year's 21 first grades using the same tests and conditions.

RESULTS AND DISCUSSION

These results are divided into several sections. First, we will look at the December testing of the second grades. Then, we will look at the May testing of the second grades, which are the final tests given in this report. Next, we will look at the new modified DMS first grade scores and compare them with the 21 groups in last year's first grades.

Tests Given at Middle of Second Grades

The Stanford Achievement Test Primary I was given to all children that we could locate from the preceding year's project in December of 1965. We had a total of 347 children which represents a drop of 43 (11%) children from the end of last year. There was a moderate amount of shifting around of children between classrooms as well as between schools in the system. No children were tested who were not in the same school system in second grade as they were in first grade.

The sub-test scores as seen in Table 6 show that generally there was no difference between the DMS, TO, or ITA taught children in December of second grade. None of these differences was significant at the .05 level by analysis of variance.

When these scores were compared with scores on the same tests given at the end of first grade, a steady growth was seen in all areas for all methods groups.

Perhaps the most interesting finding of this testing was that ITA children had learned to spell in TO with normal facility; that is, there was no difference between their spelling ability and that of the other two groups in December of second grade. At the end of first grade, it was noted that ITA children were inferior.

These raw scores shown in Table 6 continue to reflect a rather low grade level score. In last year's report, we found that these raw scores when translated into grade level were rather low on most sub-tests. For example, all of the raw scores for all three groups in the Paragraph Meaning Sub-Test were grade level 1.7 at the end of first grade. According to the test publisher's manual, these children should have been at 1.8. This was a common finding on many of the first grade studies. The grade level scores for mid-second grade continued this trend. For example, the grade level scores for Paragraph Meaning at mid-second grade were DMS 1.9, TO 2.0, ITA 2.0.

TABLE 6

COMPARISON OF MEAN RAW SCORES ON THE STANFORD ACHIEVEMENT TEST PRIMARY I GIVEN AT THE END OF 1st GRADE AND IN MID-2nd GRADE N=21 CLASSES

Subtest	DMS		TO		ITA	
	End 1st	Mid 2nd	End 1st	Mid 2nd	End 1st	Mid 2nd
Word Reading	18.7	24.6	20.3	26.2	20.5	27.9
Par. Meaning	17.3	24.0	20.4	27.3	17.6	25.9
Vocabulary	21.2	26.1	23.0	26.2	22.3	25.6
Spelling	8.8	13.4	11.0	14.7	7.4*	13.2
Word Study	34.2	38.8	34.8	40.9	35.1	41.4

* Analysis of Variance Significant at .05

According to grade level scores, Table 7, the greatest growth was in the vocabulary area. At the end of first grade, the vocabulary scores were DMS 1.8, TO 2.1, ITA 1.9. In mid-second grade, all groups scored 2.4. However, a vocabulary sub-test is really not a reading test as the teacher reads a sentence or sentence fragment and chooses one of three words or phrases which answer the questions or completes the sentence. This test is perhaps more akin to a verbal intelligence test than a reading achievement test.

Oral reading tests were not given at mid-year.

TABLE 7

COMPARISON OF MEAN GRADE SCORES ON THE STANFORD ACHIEVEMENT TEST PRIMARY I GIVEN AT THE END OF 1st GRADE AND IN MID-2nd GRADE

Subtest	DMS		TO		ITA	
	End 1st	Mid 2nd	End 1st	Mid 2nd	End 1st	Mid 2nd
Word Reading	1.7	2.0	1.7	2.1	1.8	2.3
Par. Meaning	1.7	1.9	1.7	2.0	1.7	2.0
Vocabulary	1.8	2.4	2.1	2.4	1.9	2.4
Spelling	1.7	2.1	1.9	2.3	1.6	2.1
Word Study	1.8	2.0	1.8	2.2	1.8	2.2

Tests Given at End of Second Grade

The main instrument given to all children was the Stanford Achievement Test Primary II. Table 8 shows that in general there was no significant difference on any of the sub-tests on the Stanford Achievement Test between the three methods groups. The only exception to this was the Word Meaning sub-test in which the DMS group was low, significant at the .05 level by analysis of variance.

When these raw scores are translated into grade level scores, it shows that most children are quite close to the national norms for this time of year. Note that there is a different form of the Stanford than was used previously.

The spelling deficiency which the ITA children showed at the end of first grade, again, as in the December testing, has been overcome.

Several oral reading tests were given to sub-samples of the second grade children. This testing was done as close to the Stanford Achievement test in May as possible. In all cases, it was done within a ten-day period. Last year's oral reading test sub-sample population was used as far as possible. The sub-sample population was filled out (brought up to over 40 per group) with additional children selected at random.

On the oral reading tests again, three of the four measures showed no differences between the three groups. The Gilmore Oral Reading Test accuracy score and the rate of reading score show no significant differences.

The Fry Phonetic Words Test which is an extension of the last year's Phonetically Regular Words Oral Reading Test (sample in the Appendix) shows that the ITA group was significantly superior on reading this type of word.

The Gates Word Pronunciation Test which is an oral reading test of a list of words selected on the basis of increasing difficulty, showed no significant differences.

It is interesting to note that the Gilmore grade level scores for each of the three groups is a little better than a year higher than any of the sub-tests on the Stanford Achievement Test. The Gilmore is copyrighted in 1951 and the Stanford in 1964.

TABLE 8

STANFORD ACHIEVEMENT BATTERY PRIMARY II MEAN
RAW SCORES AT THE END OF SECOND GRADE, MAY, 1966
N=21 Classes

	DMS		TO		ITA	
	Raw Score	Grade Score	Raw Score	Grade Score	Raw Score	Grade Score
Word Meaning	17.4*	2.7	20.3	3.0	20.4	3.0
Paragraph Meaning	27.2	2.6	33.3	3.0	31.1	2.9
Sc.& Soc.St. Concepts	18.9	2.9	19.5	3.1	19.7	3.1
Spelling	13.0	3.0	14.4	3.1	15.7	3.3
Word Study Skills	36.8	2.9	39.8	3.3	42.3	3.5
Language	35.9	2.9	39.1	3.1	36.8	3.0
Arithmetic Computation	19.1	2.7	21.2	2.8	19.2	2.7
Arithmetic Concepts	15.8	2.6	18.3	2.8	16.5	2.7

* Significant at .05 level by Analysis of Variance

TABLE 9

ORAL READING TEST RESULTS AT THE END OF 2ND GRADE ON A RANDOMLY SELECTED SUB SAMPLE

	DMS N=43	TO N=44	ITA N=40
Gilmore Accuracy (Acc. Grade Level Score)	4.32	4.45	4.53
Gilmore Rate (Words per minute)	84.00	85.77	79.15
Fry Phonetic Words (Numbers of words read)	23.51	25.14	31.68*
Gates Word Pronunciation (Numbers of words read)	22.91	23.84	26.05

* Significant at .01 level by Analysis of Variance

Other Evidence of Language Arts Ability for Second Grades

A standardized writing sample was collected for all students at the end of second grade. Table 28 in the Appendix shows that the ITA children wrote significantly longer stories and as a function of this, spelled more words correctly, used more different words, and more longer words. This writing issue has been mentioned in other studies including our First Grade Report (3). It is the feeling of the investigator that writing instruction was not controlled and hence, is only a minor part of the study.

For example, ITA children had a type of language arts approach which emphasized very heavily the writing of stories. The children were specifically instructed not to pay attention to spelling but to go ahead and try to write in any manner that they could. It is felt that this increased emphasis on free story writing with lack of restrictions as to spelling undoubtedly increased the length of children's stories. In order for us to know whether or not ITA does indeed produce superior story writing, we should have a controlled experiment on writing in which children taught in TO were given similar types of writing instructions.

Another bit of data was gathered by asking teachers to fill in forms for each child listing the number of books partially read and books totally read, together with a measure of eagerness and maturity of choice. We do not feel that this was a highly scientific method of gathering the data, as it required a good deal of discipline on the part of the teachers to carefully observe the children during the 4-week period in which this data was gathered. In any event, Table 29 in the Appendix shows that there were no significant differences for any of the three methods groups in any of these measures.

Description of the Second Grades and Teachers

All of the teachers of classes which contained over five project children were rated by three or four raters on the basis of class visitations. There were no significant differences in the teacher competence, but DMS teachers tended to be on the low side as they were in the preceding year. This is possibly a function of the schools in which DMS was located.

Likewise, teachers were asked to indicate the instructional time in direct reading lessons as well as instructional time in supportive language arts activities. There was no significant difference between the three methods groups either direct reading lesson time or supplementary instruction time or when these two were combined into a total language arts instruction time.

There was no significant difference between groups in terms of class size or in pupil attendance.

The project also collected information about the teacher and found no significant differences between the three groups for teacher's age, total number of years teaching experience, total number of years in second grade, number of children for which the teacher was a parent, or teacher's attendance.

Correlation Matrix for Second Grades

An extremely large Correlation Matrix can be found in the Appendix. As it presents quite a mass of data, it is very difficult to read. We have abstracted the correlations between the Stanford Paragraph Meaning Sub-Tests given at the end of second grade with all of the other variables. These can be seen in Table 10.

a. There seems to be a very low correlation between chronological age and ability to perform on the Paragraph Meaning sub-test (.17).

b. The correlations with the Murphy Durrel Reading Readiness Test given at the beginning of the first grade are also rather low, ranging from .28 to .32.

c. The Thurstone Primary Perception Test did not score much better as Pattern Copying yielded .22 and Perception of Identical Forms - .01.

d. Some parts of the Metropolitan Reading Readiness Test did slightly better. In general, the range went from .15 to .52, with a total of .40. The highest sub-test .52 was for numbers.

e. The Detroit Word Recognition Test given before reading instruction is perhaps not too interesting because so few children made any score at all. However, we did run a correlation and found that it correlated .40 with the paragraphs.

f. The rating of first grade teachers was interesting in that it correlated .59. The most interesting thing here is that it correlated higher than the rating of second grade teacher competence, .44. If one can believe these correlations, one can then make the statement that it is more important for a child to have a good first grade teacher or one that rates high by this Project standards than a good second grade teacher. One problem here, however, is that the Project Supervisors were in better contact with the first grade teachers than the second grade teachers, and there is a possibility that there is greater accuracy in the ratings of the first grade teachers than of the second grade teachers.

g. We find that the Pintner-Cunningham Raw Score (.47) and I.Q. (.49) correlated much better with second grade reading achievement than any of the reading readiness test total scores.

h. There is a negative correlation between pupil attendance and reading achievement as attendance scores are in days absent. It was -.41 for first grade attendance and -.10 for second grade attendance. Likewise, there was a negative correlation for teacher attendance in second grade of -.18. Thus, we see that there is a moderate relationship between reading achievement and attendance in the expected direction. A look at the mean number of days absent showed that students on the average missed only 6.6 days in second grade and 9.8 in first grade so there was a very high attendance for most pupils. Teachers only missed an average of 3.3 days. Interestingly enough, it seems more important for a child to attend every day in first grade than it is for him to attend every day in second grade.

i. All of the sub-tests from the Stanford Primary I given in December correlate fairly high with the Stanford Paragraphs given in May. The average is about .70. Likewise, the language sections of the Stanford given in May correlate quite high with the Paragraphs. They are mostly in the upper 70's with Word Meaning correlating .93.

j. An interesting predictor of success given very early was the Instant Word Test which was given at mid-first grade. It correlated .69 with the paragraphs given at the end of second grade. The Detroit Word Recognition Test given at the end of first grade correlated about the same, .70.

k. There was a very low correlation between Reading Achievement and Age of the Teacher, .27. Number of Years Teaching Experience, .18, and Number of Years in Second Grade, .26.

l. A surprising finding was that there was such a low correlation between Reading Achievement and second grade class size, .09. The range of second grade class sizes was from 17 to 29 pupils with a mean of 25.9. This seems to go against the fond requests of many teachers.

m. Teachers filled out a questionnaire on number of books the students read completely (-.09), and partially (.20), eagerness to read (.20), and maturity of choice (.11). All of these correlated very low with reading ability.

n. Another surprising finding was the negative correlation (-.34) between instructional time spent on reading and achievement. When this was combined with instruction time in supporting activities with a correlation of .04, it yielded a total instructional time correlation of -.32. Several hypotheses for this are that the poorest teachers spent the most time teaching reading, or teachers with the dullest children spent more time teaching reading or both.

Table 10

Correlations Between Paragraph Meaning Subtest of the Stanford Achievement Battery, Primary II-Form W and All Other Measures Used in the 1st and 2nd Grades

1.	Chronological Age		17
2.	Murphy-Durrell Reading Readiness Analysis Phonemes	9/64	:28
2.	Murphy-Durrell Letter Names	9/64	.28
4.	Murphy-Durrell Learning Rate	9/64	.32
5.	Thurstone Primary Perception Test-Pattern Copying	9/64	.22
6.	Thurstone Primary Perception Test-Identical Forms	9/64	-.01
7.	Metropolitan Readiness Test-Word Meaning	9/64	.15
8.	Metropolitan Readiness Test - Listening	9/64	.41
9.	Metropolitan Readiness Test - Matching	9/64	.27
10.	Metropolitan Readiness Test - Numbers	9/64	.52
11.	Metropolitan Readiness Test - Copying	9/64	.38
12.	Metropolitan Readiness Test - Alphabet	9/64	.31
13.	Metropolitan Readiness Test - Total	9/64	.40
14.	Detroit Word Recognition Test	12/64	.40
15.	Rating, Overall Competence 1st Gr Teacher		.59
16.	Pintner-Cunningham Raw Score	10/64	.47
17.	Pintner-Cunningham IQ	10/64	.49
18.	Pupil Attendance 1st Gr.		-.41
19.	Stanford Primary I - Word Reading	5/65	.76
20.	Stanford Primary I - Paragraph Meaning		.77
21.	Stanford Primary I - Vocabulary		.74
22.	Stanford Primary I - Spelling		.68
23.	Stanford Primary I - Word Study Skills		.66
24.	Instant Word Test	12/64	.69
25.	Detroit Word Recognition Test	5/65	.70
26.	Age of 2nd Grade Teacher		.27
27.	Total No. of Years Teaching Experience-2nd Gr. Teacher		.18
28.	2nd Grade Teaching Experience		.26
29.	Class Size 2nd Grade		.09
30.	Pupil Attendance 2nd Grade		-.10
31.	Teacher Attendance 2nd Grade		-.18
32.	Stanford Primary II Word Meaning	5/66	.93
34.	Stanford Primary II Science and Social St. Concepts	5/66	.44
35.	Stanford Primary II Spelling	5/66	.78
36.	Stanford Primary II Word Study Skills	5/65	.77
37.	Stanford Primary II Language	5/65	.76
38.	Stanford Primary II Arithmetic Computation	5/65	.50
39.	Stanford Primary II Arithmetic Concepts	5/65	.79
40.	Books Read Completely 4 wks. 2/7/66 3/7/66		-.09
41.	Books Read Partially 4 wks 2/7/66 3/7/66		.20
42.	Eagerness to Read		.20
43.	Maturity of Choice		.11
44.	Rating, Overall Competence 2nd Gr. Teacher		.44
45.	Instructional Time - Reading		-.34
46.	Instructional Time - Supportive Activities		-.04
47.	Instructional Time - Total		-.32
48.	Stanford Primary I Word Reading	12/65	.79
49.	Stanford Primary I Paragraph Meaning	12/65	.84
50.	Stanford Primary I Vocabulary	12/65	.53
51.	Stanford Primary I Spelling	12/65	.70
52.	Stanford Primary I Word Study Skills	12/65	.75

Multiple Correlation of Achievement with I.Q. and Teacher Competence

Since one of our most interesting findings was the relatively high and sustained correlation between the Stanford Paragraphs which was our main measure of achievement and both I.Q. and teacher competence in first and second grade, we decided to do a multiple correlation to see what per cent of the variance these measures could account for.

We will use the Stanford Paragraphs as our criterion or dependent variable and as independent variables (sometimes called predictors) we will use two measures of teacher competence and our I.Q. score. To recapitulate:

1. 1 is the Stanford Achievement Test Paragraph Meaning sub-test given at the end of second grade.
2. 2 is the rating of Teacher Competence in first grade.
3. 3 is the rating of Teacher Competence in second grade.
4. 4 is the Pitner Cunningham I.Q. score obtained at the beginning of first grade.

To review, our simple product moment correlations are:

r_{12} .59 r_{13} .44 r_{14} .49

But by adding multiple correlation computations, we find that $r_{1.23}$ is .64 and $r_{1.234}$ is .73. By squaring these we find that the first accounts for 41% of the variance, and the second accounts for 54% of the variance.

What this means in nonstatistical language is that while both the teacher rating and the I.Q. will help predict success in reading,when they are both used together, they are even better predictors. If you wish to look at the situation post hoc or after the year is completed, you can say that the "goodness" of the teacher and the child's I.Q. account for a large amount of the success in reading as measured by the Stanford Paragraphs.

Or if you prefer a nice sloppy gut level statement: "The more brains a kid has, and the better his teacher is, the greater will be his chances of reading well." As was mentioned earlier, it is more important for that good teacher to be in the first grade than the second grade.

Analysis of Second Grade Results by Sex and I.Q.

The basic unit of randomization of this study was the classroom; hence, the analysis of the preceding scores was done using classroom means. However, in order to answer questions such as, "Do boys read better than girls by any given method," or "Is any method particularly good for bright, average, or dull children?", it was necessary to re-analyze the scores using individual students as the unit. In order to do this, the total population was split roughly into thirds using Pintner-Cunningham I.Q. scores. A Chi Square analysis of the resulting cell frequencies revealed that the groups did not constitute a random sample from a single population (.01 level) so that the analysis of variance was of limited value as done here.

Table 62 in the Appendix shows that an analysis of variance as described above reveals no interaction between method and I.Q. or method and sex. This means that none of the three methods was better for boys or for girls or none of the three methods was better for bright students, average students, or dull students.

Unlike some of the other studies that reported last year, we did not find significant differences between the scores of the boys and the girls at any I.Q. level. However, there was a trend when combining all intelligence levels for girls to score higher than boys in each of the three methods.

The most important and significant finding that this analysis revealed was that bright students consistently read better than average students who consistently read better than the duller students, regardless of the method. The significance of these differences is further supported by the I.Q. and achievement correlation (.49).

This analysis of variance did reveal significant differences between the methods, but this finding is not supported by the more powerful analysis of variance using classrooms as a unit. And also one might note how much larger the F for the main effect of I.Q. as opposed to the main effect for teaching method.

First Grade Pre-Reading Tests

Seven first grades were selected in two of the three districts which participated in the original study. Like the original study we attempted to get volunteers from among the first grade teachers. However, this time there was only one method being studied, the modified DMS.

This modified DMS group consisted of seven first grades which used reading materials which had DMS marks. The chief difference was that instead of reprinting the Allyn and Bacon readers with an overprint of DMS marks as we had used in the original study, this modified DMS group had completely new pre-primers written by Edward Fry and Lee Harrison Mountain. These new primers helped to overcome the problem of having infrequently used phonetic sounds in the very earliest reading materials.

As near as possible all testing procedures and instruction procedures were made to parallel the preceding year's twenty-one first grades so that the groups could be compared.

Comparison of teachers on such factors as the mean age and number of years of teaching experience was not greatly different between the four methods groups. Perhaps it might be noted that the modified DMS classes had the largest class size (26.4 compared to 24.0, 23.4, and 23.9). However, the correlation matrix on last year's study showed a low correlation between class size and achievement.

The first major problem was that I.Q. scores were significantly higher for this new first grade group. This year's first grades had a Pintner-Cunningham mean I.Q. score of 105.4, while last year's three groups had the following scores: DMS 97.7, TO 101.3, and ITA 98.2.

Since we found that I.Q. had one of the strongest influences on reading achievement (.49) and that chronological age also had an effect on reading achievement in first grade (.40), we decided to use an analysis of covariance, holding these two factors constant to equate the groups. This analysis of covariance was first applied to the reading readiness tests to see if they could be equated. Tables 45 to 51 in the Appendix show that three of the six sub-tests of the Metropolitan Readiness tests and the total score were significantly higher for the new first grades without an analysis of covariance,but after an analysis of covariance was applied, all of the sub-tests including the total score showed no significant differences. Likewise, one of the three sub-tests of the Murphy-Durrell Reading Readiness tests (total letter names) was significantly high before adjustment, but after adjustment there was no significant difference between the groups, see Tables 42 through 44.

First Grade Post Tests

The chief measuring instrument for reading achievement at the end of first grade was the Stanford Achievement Test, Primary I. Table 11 shows the mean scores for each of the sub-tests. The adjusted means show no significant difference for any of the methods on word meaning, paragraph meaning, or word study skills. There were significant differences on the vocabulary test with the modified DMS method coming out low. This test is really more of an I.Q. test than a reading ability test, as the teacher reads the words to the child. In other words, this test requires no reading at all. The teacher reads a sentence or sentence fragment and the student chooses one of three words or phrases which are read to him and he answers the question or completes the sentence.

The last sub-test on the Stanford was spelling, and here again differences were found significant at the .05 level. The ITA group came out low with a mean adjusted score of 8.0, and the modified DMS group came out an adjusted high score of 12.1. This test was the only subtest on the Stanford which was significant at the .05

level last year. The explanation quite possibly is that the ITA children were required to spell in TO. It will be noted that at the end of second grade that ITA children recovered to have normal spelling ability.

Because of the smallness of the sub-sample, an analysis of covariance was not used on the oral reading test. These results can be seen in Table 12. There was no significant difference on the Gilmore Oral Reading Test either for accuracy or rate.

On the Fry Phonetically Regular Words Test both the ITA and the modified DMS groups scored significantly higher than the old DMS and TO groups.

On the Gates Words Pronunciation Test which used high frequency words, there were no significant differences, with the modified DMS method coming out highest and the old DMS method coming out lowest.

The sub-sample population was also scored on a writing sample. As in the preceding year, the ITA children wrote significantly longer stories with significantly more errors. The differences in spelling in the writing sample were not significant, but the modified DMS came out high and the old DMS came out low. See Table 13.

TABLE 11
(May)

STANFORD ACHIEVEMENT TEST - PRIMARY I
RAW AND ADJUSTED MEAN SCORES

Comparison of 1965-66 1st Grades with 1964-65 1st Grades

Test	Word Reading		Paragraph Meaning		Vocabulary	
Method	Mean	Adjusted Mean	Mean	Adjusted Mean	Mean	Adjusted Mean
DMS(64-65)	18.7	19.9	17.3	18.6	21.3	22.7
TO	20.3	20.2	20.4	20.4	23.0	23.3
ITA	20.5	21.5	17.6	18.8	22.4	23.7
DMS(65-66)	22.4	20.3	22.4	19.8	21.9	19.2
F	2.01	.60	3.54*	.44	.55	10.5**

Test	Spelling		Word Study Skills	
Method	Mean	Adjusted Mean	Mean	Adjusted Mean
DMS(64-65)	8.8	9.7	34.1	35.9
TO	11.0	10.9	34.9	34.9
ITA	7.4	8.0	35.1	36.8
DMS(65-66)	13.6	12.1	38.8	35.4
F	11.57**	4.63*	1.91	.44

Covatiates: Chronological Age: Pintner-Cunningham Raw Score:
Teacher Rating: Overall Competence
* Significant at .05 level
** Significant at .01 level

First Grade Correlation Matrix

A correlation matrix of 14 selected first grade variables was prepared, Table 60. This was prepared both with and without the new first grades started in 1965-66. This matrix duplicates and extends Table 23 on page 64 of last year's report (3). In the former report the Stanford

Paragraph Meaning and Vocabulary correlations were erroneously reversed. The present version corrects this.

In the main, adding the new first grades to the matrix strengthened the trends evidenced in the original version, showing that this new group performed pretty much the same as the previous year's. The one exception was the correlations with the Stanford Vocabulary sub-test scores which went completely contrary to the trend. This, in view of the other score information, leads us to believe that this score could very well be aberrant, though at this time we are not prepared to assign any particular reason.

TABLE 12
(May)

ORAL READING TESTS
MEAN SCORES OF A SUB-SAMPLE OF THE POPULATION

Comparison of 1965-66 1st Grades with 1964-65 1st Grades

	DMS(64-65)	TO	ITA	DMS(65-66)
Gilmore Accuracy (Accuracy Grade Level Score)	2.5	3.1	2.7	2.9
Gilmore Rate (Words per Minute)	45.9	58.4	44.6	52.4
Fry Phonetic Words (No. of Words Read)	4.6	7.9	10.8*	13.0*
Gates Word Pronunciation (No. of Words Read)	10.0	12.7	14.0	14.7

* Indicates Significance at .01 level

TABLE 13

MEAN SCORES OF A SUB-SAMPLE OF THE POPULATION AFTER INSTRUCTION ON A WRITING SAMPLE

Comparison of 1965-66 1st Grades with 1964-65 1st Grades

	DMS(64-65)	TO	ITA	DMS(65-66)
Writing Mechanics (Ratio of correct usage of punctuation, capitalization, & indentation to number of times correct expressed as a percentage)	55.1	61.0	33.7**	56.7
Spelling (Ratio of total words spelled correctly to total words used: expressed as a percentage)	12.1	20.5	18.7	28.2
Total number of words used	17.9	25.0	43.8*	31.5

* Indicates significance at .01 level
**Indicates significance at .05 level

Reading Readiness

As an earlier section showed, readiness tests are poor predictors of how well a child will read. We did not allow the teachers to even see the test scores until the end of the first grade. We simply told the teachers to start teaching reading to all the children in a randomly selected three groups. Then after a few weeks of instruction, a continuing evaluation was in progress to sort the children into fast, average, and slow reading groups. Under these conditions our pupils read as well as students in most of the other first grade studies in the nation; hence, we certainly were not hurting the class averages by doing this. As to the injustices to the individual child by placing him in a delayed reading group because of an unreliable reading readiness score, one can but surmise.

A further verification of the uselessness of delaying reading of first graders by placing them in "readiness groups" until they are ready to read can be found in a minor offshoot of this study reported at the American Educational Research Association meeting (4). Four project TO first grades (N 75) were compared with four non-project first grades using TO (N 78). The chief difference between them was that teachers in the project were required to start reading with all children and were not allowed to see readiness test scores. The non-project classes went through varying degrees of holding up reading instruction (readiness activities) for some or all children. Mid-December testing on the

Instant Word Recognition test showed significant differences favoring the project classes. In other words in the classes where the children were taught to read, the children learned to read. Incidentally, just in case anyone still believes in readiness tests, the non-project students had slightly higher but not significantly higher readiness scores prior to instruction.

TABLE 14

COMPARISON OF READINESS AND NON-READINESS READING GROUPS ON THE METROPOLITAN READING READINESS TEST AND INSTANT WORD RECOGNITION TEST - RAW SCORES, DECEMBER 1964

Tests	Non-Project Classes With Readiness Groups (N=78)	Project Classes With No Readiness Groups (N=75)	Significance of Differences
Metropolitan Reading Readiness Test	Mean 53.8	50.2	Not Signif.
	S.D. 16.3	15.9	
Instant Word Test (Reading)	Mean 10.2	12.0	P = < .01*
	S.D. 5.56	5.9	

*Analysis of variance gave an F of 4.10 significant at the .05 level and analysis of covariance gave an F of 11.40 significant at the .01 level.

CONCLUSIONS AND IMPLICATIONS

The main conclusion that can be drawn from this study is that it really doesn't make much difference which of the three methods, ITA, TO, or DMS is used to teach reading in the first grades. Our test results consistently show that at the middle of first grade, the end of first grade, in the middle of second grade, and in the end of second grade with both oral and silent reading tests that there isn't much difference in the children taught by any of these three methods. No method is superior or inferior for bright or dull children, or for boys or girls.

This conclusion is supported by our survey of similar studies which show that the weight of research seems to show that there is very little difference between the reading abilities of children taught in TO or ITA.

It seems traditional and predictable that any new reading method has violent adherents who are lavish with praise and quote glowing testimonials from individual users. These ecstatic adherents usually arouse a smaller but vociferous group who write pages of opinion criticizing the new method. While opinion is interesting and there can be all sorts of "logical" reasons why a new method should or should not be better, this research and survey has attempted to stay close to results in the form of test data.

It should be further noted that our survey was devoted to reading ability. We feel that reading ability is best measured by a paragraph meaning type test; while word recognition, study skills, etc. are important, their importance is secondary to whether or not a child can comprehend a paragraph while reading silently. Likewise, the main object of most of these studies was to compare reading ability and hence, any comments about spelling or writing ability while interesting, usually are not controlled factors in the design of the study. Incidentally, the Gilmore Oral Reading Test generally had similar results to the Stanford Paragraphs--that is, no difference between groups.

The early studies done by Downing in Britain which showed highly favorable results for ITA have not been substantiated. A large number of schools in Britain have adopted ITA based largely on Downing's early studies. Due largely to the research studies supported by the U.S. Office of Education, it seems likely that this will never happen in the United States.

What we did find was the competence of the teacher is important especially in first grade. This has a much greater effect on the children's reading achievement than the method being used. What this means is that better teachers obtained either by better training or better selection are very important. Conversely it means that poorer teachers should be taken out of the classroom. If a principal must use a poor teacher, he should not place her in 1st grade. Our study shows that she will do less damage in 2nd grade.

We also found that I.Q. has great effect on reading achievement, and that it is a much better predictor on success in reading than reading readiness tests, especially over a two-year period. This means that school districts would be well advised to use I.Q. tests instead of reading readiness tests if prediction of success at the end of first grade, or especially of prediction of success at the end of second grade, is their goal.

Our study lends no support to the common practice of holding up pupils from reading until "they are ready" based on a reading readiness test or whatever system or judgement dictated, delaying reading for first graders after September.

Another interesting finding was the relative wide range of differences in mean scores between classes even within one method. What this means is that small method studies that have one or two classrooms per method group are almost valueless. We feel that the seven classrooms we used per method group was an absolute minimum. But on the other hand it was large enough to give us very comparable results with the other first grade studies in other parts of the country using similar methods; hence, seven classrooms are apparently large enough for consistency and replicability.

We feel our study was greatly strengthened by being one of the twenty-seven first grade studies to be sponsored by the U. S. Office of Education. The degree of voluntary control voted by the project directors not only strengthened our study but gave us a great advantage of comparing it with other studies around the country. We hope that this cooperative project will be a forerunner of others following a similar pattern. In fact the greatest flaw this investigator finds is the lack of parallelism in reporting procedures. Hence, he would argue for relatively more control rather than less.

An interesting minor finding was the relatively high correlation (.69) between a short simple reading achievement test (Instant Word Recognition Test) given in December of first grade and the scores on the Paragraph Meaning sub-test of the Stanford at the end of second grade. What this means is that even a simple reading test given after only a few months' of instruction has quite high predictive value for future reading achievement. In fact its predictive value is much higher than either reading readiness tests or I.Q. tests given prior to reading instructions.

Another minor finding of some interest is that it is relatively more important for students to attend regularly in first grade than in second grade.

Our finding that there was almost no correlation between reading achievement and class size may come as unwelcome news to many educators. The cold facts are, however, that within the range of classroom sizes in this study (17 to 29) it did not affect reading achievement.

After discovering this lack of correlation between reading achievement in second grade and class size, we went back to last year's data and computed the correlation between achievement at end of first grade and first grade class size and again we found almost no correlation (.09). Just for the fun of it we also computed the correlation between first grade class size and achievement at the end of 2nd grade and again found a very low correlation (.18).

The implication here is that smaller classes (less than 29) do not increase the childrens' reading ability.

Our finding of a negative correlation between instruction time and reading achievement again tends to knock down a common assumption that the more time spent on teaching, the better the readers will be. One of our hypotheses for this is that the poorest teachers tended to spend the most time on reading. This is supported by the finding that good teachers get higher results. One could only conclude that poor teachers can't make up for their inadequacies by harder work.

The other hypothesis for this is that teachers tend to spend more instruction time with lower I.Q. classes, and if this is so it doesn't seem to work. Perhaps lower I.Q. classes are going to learn at their own rate regardless of extra teacher effort.

The correlation between age and reading achievement definitely fell (from .40 to .18) between first and second grade. Thus we can see that older children tend to do better in first grade, but in second grade age doesn't make very much difference, and young second graders do about as well as older second graders.

The age of the teacher had little effect on achievement, and we had a wide range from those sweet young things looking for a husband to others looking closely at retirement. Experience in teaching at that particular grade level (second grade) had only slight effect with a faint tendency for those teachers with more second grade experience to achieve better results.

One might suspect, and indeed there were some early claims, that some of the methods that were more phonetically regular such as ITA would yield better spelling results; however, we did not find this. We are quite willing to discount the statistically significant inferiority of the ITA group at the end of the first grade, as there were still many children writing and spelling in ITA. But by the end of second grade there were no significant differences.

An arithmetic test was given at the end of second grade just to see if teachers were perhaps overemphasizing reading and underemphasizing other subjects such as arithmetic. Essentially they were up to national norms with no differences between the methods groups. There is some evidence that the children did not suffer in other subjects from being in a reading experiment.

There is no question about the fact that ITA children wrote longer stories. This finding was clear at the end of first grade and at the end of second grade. The reason for it, however, might be more in the type of "writing instructions" given than in the medium (ITA alphabet). ITA children only (not TO or DMS) were instructed in first grade to write stories disregarding spelling. The teachers' manuals for ITA classes had a relatively heavy emphasis on story writing, while the other two methods teachers' manuals were silent on the subject. A recommendation for further research is that a study interested specifically in story writing look into this finding, as we feel that this study left too much uncontrolled to prove much about writing.

Our finding that there was a low correlation between number of books read, maturity of choice, and reading achievement should not receive too much emphasis as the teacher was required to do rather careful observation over a four week period. We had 40 different second grade teachers, most of whom felt not too much responsibility to the project (they had not volunteered), and to complete the questionnaire properly would require some effort and time. It may very well be that students who can read well don't necessarily read much (one tends to observe this more with boys than girls), but this study should make only qualified statements about this finding.

SUMMARY

This is an end of second year report of one of twenty-seven coordinated studies investigating beginning reading methods. The three methods that we investigated were the Initial Teaching Alphabet (Tanyzer and Mazurkiewicz materials published by Pitman), the Diacritical Marking System (the Sheldon materials published by Allyn and Bacon with diacritical marks to make each word phonetically regular), and traditional orthography reading materials (the Sheldon materials published by Allyn and Bacon in their regular form).

There were seven first grades in each of these methods during the school year of 1964-65. The final report at the end of that year showed there were no statistically significant differences between any of the three methods on any sub-test on the Stanford Achievement Test Primary I or on the Gilmore Oral Reading Test. As part of this report the same first grades were tested in December and May of second grade. The Stanford Primary I revealed no differences in December and the Stanford Primary II yielded no differences in May. Differences were not found on the Gilmore

Oral Reading Test or on the Gates High Frequency List of Words read orally. Differences were found favoring the ITA on a list of phonetically regular words read orally.

A writing sample taken at the end of second grade showed that ITA children wrote significantly longer stories, but writing was not carefully controlled in the study.

A correlation matrix between reading achievement as measured by the Stanford Paragraph Meaning sub-test and number of other variables yielded some interesting information. One of the highest correlations was between first and second grade teacher competence and reading achievement. This indicates the importance of the teacher rather than the method. I.Q. correlated higher with achievement in first grade and particularly second grade than reading readiness tests. There was very little correlation between reading achievement and: class size, number of books read, age of child, age of teacher, experience of teacher. The low correlation for class size in reading achievement will be disturbing to many teachers, but we found it in both first and second grade.

Attendance was generally high. We found it tended to be more important for a child to attend regularly in first than in second grade. It was also more important to have a highly competent teacher in first grade than in second grade.

A simple group word recognition test, the Instant Word Recognition Test, given in December of first grade predicted reading achievement at end of second grade quite well.

There was no significant difference between the three groups in spelling or arithmetic test scores.

As another part of this year's study we started a new modified DMS group which used original materials prepared by Edward Fry and Lee Harrison Mountain. Seven first grades used these materials and were compared with last year's first grades. No significant differences emerged.

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APPENDIX

Table 15
2nd Grade - December Testing
Stanford Achievement Test - Primary I
Word Reading - Total Number Correct

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
D.M.S. Classes						
19.1	9.1	2.2	16	35	8	27
26.0	8.1	2.1	15	35	12	23
27.6	7.4	1.8	17	35	8	27
26.6	6.1	1.4	18	35	18	17
22.9	7.5	1.6	20	35	8	27
27.1	8.8	2.0	19	35	8	27
22.7	7.6	1.8	17	35	9	26
D.M.S. Mean - 24.6						
T.O Classes						
29.0	5.6	1.6	12	35	20	15
26.9	7.2	1.5	21	35	10	25
25.0	7.3	1.6	20	35	9	26
24.6	9.3	2.5	13	35	8	27
22.0	9.6	2.6	13	35	7	28
26.0	9.4	2.6	13	35	7	28
30.2	5.5	1.3	18	35	16	19
T.O. Mean = 26.2						
I.T.A. Classes						
29.1	6.6	1.4	21	35	13	22
30.0	6.0	1.4	17	35	14	21
27.2	8.2	2.1	15	35	14	21
28.7	7.8	1.5	25	35	10	25
29.4	5.4	1.1	22	35	19	16
28.7	8.4	2.1	15	35	9	26
22.7	8.2	2.3	12	34	10	24
I.T.A. Mean = 27.9						

Analysis of variance among group means: not significant

Table 16
2nd Grade - December Testing
Stanford Achievement Test - Primary I
Paragraph Meaning - Total Number Correct

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
D.M.S. Classes						
18.5	10.4	2.6	16	37	6	31
25.6	8.7	2.2	15	36	11	25
27.4	7.0	1.7	17	37	12	25
26.6	8.2	1.9	18	37	10	27
20.3	9.1	2.0	20	35	3	32
28.0	8.0	1.8	19	38	11	27
21.8	9.0	2.1	17	36	7	29
D.M.S. Mean - 24.0						
T.O. Classes						
29.0	6.3	1.8	12	37	15	22
27.9	9.6	2.1	21	38	6	32
26.5	7.2	1.6	20	37	11	26
27.0	10.6	2.9	13	38	11	27
21.8	12.4	3.4	13	37	3	34
27.0	9.0	2.5	13	38	7	31
32.0	6.9	1.6	18	38	10	28
T.O. Mean = 27.3						
I.T.A. Classes						
28.1	7.6	1.6	21	37	13	24
27.2	8.0	1.9	17	37	7	30
23.4	12.0	3.1	15	38	6	32
27.8	9.9	1.9	25	38	8	30
27.8	7.1	1.5	22	36	13	23
26.2	11.3	2.9	15	36	3	33
21.0	11.5	3.3	12	36	7	29
I.T.A. Mean = 25.9						

Analysis of variance among group means: not significant

Table 17
2nd Grade - December Testing
Stanford Achievement Test - Primary I
Vocabulary - Total Number Correct

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
D.M.S. Classes						
22.1	8.0	2.0	16	35	8	27
25.4	6.5	1.6	15	34	11	23
27.7	5.0	1.2	17	36	18	18
27.7	6.7	1.5	18	39	10	29
24.0	5.4	1.2	20	32	13	19
29.1	4.4	1.0	19	39	19	20
27.0	6.6	1.6	17	37	14	23
D.M.S. Mean = 26.1						
T.O. Classes						
26.9	5.0	1.4	12	35	20	15
25.8	5.8	1.2	21	34	15	19
26.9	4.8	1.0	20	36	19	17
27.4	7.1	1.9	13	38	17	21
21.8	7.0	1.9	13	32	13	19
24.3	5.6	1.5	13	33	12	21
30.4	4.2	1.0	18	36	22	14
T.O. Mean = 26.2						
I.T.A. Classes						
26.8	4.8	1.0	21	34	17	17
26.1	6.2	1.5	17	36	14	22
25.2	3.1	0.8	15	30	21	9
25.8	6.6	1.3	25	35	11	24
27.2	5.6	1.2	22	36	18	18
26.4	6.7	1.7	15	35	16	19
21.9	5.7	1.6	12	34	15	19
I.T.A. Mean = 25.6						

Analysis of variance among group means: not significant

Table 18
2nd Grade - December Testing
Stanford Achievement Test - Primary I
Spelling - Total Number Correct

			D.M.S. Classes			
Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
11.5	6.7	1.6	16	20	0	20
15.5	4.9	1.2	15	20	6	14
15.7	4.6	1.1	17	20	2	18
14.8	4.7	1.1	18	20	7	13
11.2	5.3	1.2	20	17	1	16
14.5	5.6	1.2	19	20	2	18
10.7	5.1	1.2	17	19	2	17
D.M.S. Mean = 13.4						
			T.O. Classes			
15.6	4.6	1.3	12	20	5	15
14.9	4.8	1.0	21	20	3	17
15.7	4.1	0.9	20	20	6	14
14.5	7.2	2.0	13	20	0	20
11.4	6.9	1.9	13	19	0	19
14.7	4.4	1.2	13	19	6	13
15.9	3.4	0.8	18	20	9	11
T.O, Mean = 14.7						
			I.T.A. Classes			
14.5	4.8	1.0	21	20	1	19
15.0	4.1	1.0	17	20	6	14
14.4	5.4	1.4	15	19	3	16
12.8	5.8	1.1	25	20	3	17
12.6	5.5	1.1	22	20	5	15
14.2	6.4	1.6	15	20	0	20
9.0	6.7	1.9	12	16	0	16
I.T.A. Mean= 13.2						

Analysis of variance among group means: not significant

Table 19
2nd Grade - December Testing
Stanford Achievement Test- Primary I
Word Study Skills -- Total Number Correct

D.M.S. Classes

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
34.6	10.3	2.5	16	52	24	28
40.5	8.3	2.1	15	53	27	26
43.6	7.0	1.7	17	55	30	25
42.8	8.7	2.0	18	54	22	32
38.1	7.7	1.7	20	50	25	25
42.7	8.0	1.8	19	53	28	25
36.2	7.5	1.8	17	49	23	26

D.M.S. Mean = 39.8

T.O. Classes

42.5	9.6	2.8	12	54	21	33
42.1	7.5	1.6	21	51	24	27
38.1	9.1	2.0	20	51	24	27
43.1	9.2	2.5	13	56	25	31
35.5	13.0	3.6	13	51	17	34
41.3	11.1	3.0	13	56	20	36
43.6	7.6	1.8	18	54	28	26

T.O. Mean = 40.9

I.T.A. Classes

43.2	8.0	1.7	21	55	21	34
41.4	7.8	1.9	17	54	29	25
40.6	8.6	2.2	15	54	23	31
43.2	9.2	1.8	25	55	27	28
45.5	7.1	1.5	22	55	27	28
42.4	10.1	2.6	15	55	22	33
33.2	10.0	2.9	12	54	23	31

I.T.A. Mean = 41.4

Analysis of variance among group means: not significant

Table 20
2nd Grade - May Testing
Stanford Achievement Test- Primary II
Word Meaning - Total Number Correct

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
D.M.S. Classes						
13.4	6.0	1.3	20	29	6	23
19.5	5.5	1.6	12	27	9	18
18.5	5.9	1.4	16	28	6	22
17.2	7.1	1.6	18	31	5	26
17.3	8.0	2.0	16	32	6	26
21.4	6.5	1.5	19	35	9	26
14.5	6.3	1.5	17	24	2	22
D.M.S. Mean = 17.4						
T.O. Classes						
21.7	3.0	0.8	14	27	17	10
22.0	7.1	1.5	21	33	6	27
20.0	6.2	1.5	17	34	11	23
18.2	8.2	2.2	13	32	8	24
19.5	9.1	2.6	12	33	2	31
18.3	7.1	2.0	12	27	6	21
22.4	5.1	1.2	18	32	11	21
T.O. Mean = 20.3						
I.T.A. Classes						
22.2	4.8	1.0	21	29	10	19
21.5	4.7	1.1	16	27	12	15
18.2	7.5	1.9	15	29	5	24
20.3	6.9	1.4	25	33	6	27
22.7	5.1	1.0	24	33	16	17
21.9	6.7	1.6	16	31	9	22
16.1	5.9	1.9	9	24	7	17
I.T.A. Mean = 20.4						

Analysis of variance among group means indicates DMS lower than T.O. and I.T.A. significant at the .05 level of probability

Table 21
2nd Grade - May Testing
Stanford Achievement Test- Primary II
Paragraph Meaning - Total Number Correct

D.M.S. Classes

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
18.9	13.9	3.1	20	48	5	43
32.4	8.6	2.4	12	46	14	32
30.0	10.5	2.6	16	44	9	35
29.0	11.8	2.8	18	50	8	42
27.5	10.5	2.6	16	46	9	37
32.9	11.9	2.7	19	55	12	43
19.8	9.8	2.3	17	44	4	40
D.M.S. Mean = 27.2						
			T.O. Classes			
35.0	7.3	1.9	14	46	21	25
36.5	8.8	1.9	21	48	14	34
32.7	10.1	2.4	17	47	11	36
30.4	13.4	3.7	13	50	10	40
31.1	14.4	4.1	12	55	1	54
30.0	10.8	3.1	12	42	12	30
37.1	8.9	2.1	18	49	15	34
T.O. Mean = 33.3						
			I.T.A. Classes			
34.0	10.9	2.4	21	50	10	40
31.2	9.8	2.4	16	45	9	36
29.2	11.0	2.8	15	44	12	32
34.9	11.9	2.3	25	55	8	47
33.3	10.1	2.0	24	53	16	37
32.9	13.1	3.3	16	52	7	45
22.4	10.0	3.1	10	44	11	33
I.T.A. Mean = 31.1						

Analysis of variance among group means: not significant

Table 22
2nd Grade - May Testing
Stanford Achievement Test - Primary II
Science and Social Study Concepts - Total Number Correct

D.M.S. Classes

Mean	Standard Deviation	Standard Error of the Mean	Smple Size	Maximum	Minimum	Range
16.8	4.1	0.9	20	23	11	12
20.9	5.6	1.6	12	31	12	19
17.0	5.9	1.5	16	26	5	21
18.6	5.0	1.2	18	28	10	18
18.0	6.2	1.5	16	29	2	27
22.7	4.9	1.1	19	35	15	20
18.1	4.5	1.1	17	26	9	17

D.M.S. Mean - 18.9

T.O. Classes

16.2	3.8	1.0	14	24	11	13
20.5	5.2	1.1	21	29	9	20
20.1	6.5	1.6	17	30	6	24
18.8	5.4	1.5	13	27	9	18
17.3	6.1	1.7	12	31	9	22
18.6	6.2	1.8	12	27	7	20
25.0	3.8	0.9	18	32	20	12

T.O. Mean = 19.5

I.T.A. Classes

25.1	5.0	1.1	21	35	14	21
17.3	5.2	1.3	16	28	10	18
16.0	3.7	0.9	15	23	10	13
18.2	4.3	0.8	25	25	10	15
19.5	6.1	1.2	24	30	10	20
22.0	3.9	0.9	16	29	15	14
19.8	4.1	1.3	10	26	13	13

I.T.A. Mean = 19.7

Analysis of variance among group means: not significant

Table 23
2nd Grade - May Testing
Stanford Achievement Test - Primary II
Spelling - Total Number Correct

D.M.S. Classes

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
8.5	6.6	1.5	20	20	0	20
18.5	6.8	1.9	12	26	4	22
16.9	7.5	1.9	16	28	3	25
15.4	8.6	2.0	18	27	1	26
11.0	5.5	1.4	16	22	2	20
13.0	7.7	1.7	19	28	1	27
7.8	3.0	0.7	17	13	2	11

D.M.S. Mean = 13.0

T.O. Classes

15.2	8.1	2.1	14	28	3	25
16.5	6.7	1.4	21	28	2	26
14.3	8.7	2.1	17	27	1	26
12.6	9.7	2.7	13	28	1	27
15.2	9.3	2.7	12	29	1	28
12.5	7.1	2.0	12	24	0	24
14.6	6.9	1.6	18	27	5	22

T.O. Mean = 14.4

I.T.A. Classes

19.3	5.9	1.3	21	29	3	26
17.4	7.4	1.8	16	29	2	27
16.2	8.3	2.1	15	28	4	24
15.4	7.3	1.4	25	27	2	25
17.8	7.3	1.4	24	28	8	20
16.8	8.9	2.2	16	28	2	26
6.8	5.9	1.8	10	17	0	17

I.T.A. Mean = 15.7

Analysis of variance among group means: not significant

Table 24
2nd Grade - May Testing
Stanford Achievement Test - Primary II
Word Study Skills - Total Number Correct

D.M.S. Classes

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
29.7	10.9	2.4	20	52	15	37
40.5	10.7	3.1	12	54	22	32
38.6	10.6	2.6	16	53	19	34
38.0	15.6	3.6	18	62	14	48
37.7	9.0	2.2	16	54	22	32
40.0	9.3	2.1	19	56	22	34
33.1	9.7	2.3	17	58	19	39

D.M.S. Mean = 36.8

T.O. Classes

39.3	9.6	2.5	14	56	22	34
47.2	11.0	2.4	21	60	27	33
41.1	9.7	2.3	17	57	27	30
37.8	15.3	4.2	13	59	17	42
37.6	15.0	4.3	12	58	16	42
37.4	10.9	3.1	12	50	18	32
38.0	7.5	1.7	18	50	27	23

T.O. Mean = 39.8

I.T.A. Classes

42.1	8.9	1.9	21	59	23	36
40.8	10.2	2.5	16	56	18	38
41.2	13.3	3.4	15	60	23	37
43.4	14.3	2 8	25	62	15	47
45.6	10.2	2.1	24	62	27	35
49.0	12.6	3.1	16	62	21	41
33.7	14.9	4.7	10	59	19	40

I.T.A. Mean = 42.3

Analysis of variance among group means: not significant

Table 25
2nd Grade - May Testing
Stanford Achievement Test - Primary II
Language - Total Number Correct

D.M.S. Classes

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
29.8	11.4	2.5	20	51	9	42
41.1	6.7	1.9	12	54	29	25
35.3	8.0	2.0	16	46	14	32
36.0	10.5	2.4	18	58	26	32
35.0	7.8	1.9	16	55	25	30
39.9	10.6	2.4	19	59	22	37
34.5	7.2	1.7	17	53	25	28
D.M.S. Mean = 35.9						
T.O. Classes						
34.7	10.4	2.7	14	58	10	48
44.5	7.5	1.6	21	59	32	27
37.9	8.5	2.0	17	53	25	28
37.2	10.9	3.0	13	60	24	36
36.7	12.0	3.4	12	60	14	46
39.0	9.5	2.7	12	54	19	35
43.8	6.9	1.6	18	59	32	27
T.O. Mean = 39.1						
I.T.A. Classes						
36.2	8.4	1.8	21	54	22	32
35.1	9.4	2.3	16	54	21	33
34.9	10.1	2.6	15	49	15	34
38.8	10.4	2.0	25	55	13	42
39.5	8.4	1.7	24	57	27	30
39.4	10.8	2.7	16	63	23	40
33.8	6.7	2.1	10	47	25	22
I.T.A. Mean - 36.8						

Analysis of variance among means: not significant

Table 26
2nd Grade - May Testing
Stanford Achievement Test - Primary II
Arithmetic Computation - Total Number Correct

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
D.M.S. Classes						
17.7	9.8	2.1	20	34	3	31
23.6	5.0	1.4	12	32	14	18
22.1	6.8	1.7	16	30	9	21
19.6	8.6	2.0	18	31	1	30
12.8	7.5	1.8	16	24	0	24
22.2	7.4	1.7	19	35	5	30
15.9	6.2	1.5	17	23	0	23
D.M.S. Mean = 19.1						
T.O. Classes						
24.2	6.0	1.6	14	32	12	20
24.4	5.7	1.2	21	33	11	22
23.2	6.7	1.6	17	31	12	19
20.9	6.8	1.8	13	30	5	25
13.3	10.2	2.9	12	35	2	33
19.2	8.7	2.5	12	29	0	29
23.3	8.3	1.9	18	40	10	30
T.O. Mean - 21.2						
I.T.A. Classes						
18.5	6.2	1.3	21	29	10	19
16.7	7.6	1.9	16	27	2	25
25.4	4.8	1.2	15	31	16	15
18.8	7.3	1.4	25	31	0	31
15.6	6.8	1.4	24	36	5	31
25.0	8.3	2.0	16	34	8	26
14.3	9.2	2.9	10	28	4	24
I.T.A. Mean = 19.2						

Analysis of variance among means: not significant

Table 27
2nd Grade - May Testing
Stanford Achievement Test - Primary II
Arithmetic Concepts - Total Number Correct

D.M.S. Classes

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
12.4	7.6	1.7	20	26	4	22
19.9	7.6	2.2	12	34	11	23
16.5	6.5	1.6	16	30	7	23
14.8	5.8	1.3	18	27	7	20
12.3	4.8	1.2	16	25	6	19
22.5	7.0	1.6	19	36	10	26
12.3	5.6	1.3	17	28	6	22

D.M.S. Mean = 15.8

T.O. Classes

17.4	4.7	1.2	14	26	10	16
21.3	7.1	1.5	21	35	9	26
16.0	6.7	1.6	17	29	6	23
17.6	6.8	1.9	13	27	8	19
16.4	10.5	3.0	12	40	0	40
17.5	6.5	1.9	12	31	9	22
22.1	9.2	2.1	18	39	9	30

T.O. Mean - 18.3

I.T.A. Classes

15.0	6.9	1.5	21	32	4	28
14.2	5.2	1.3	16	25	7	18
16.2	6.4	1.6	15	29	6	23
15.3	7.1	1.4	25	34	5	29
18.2	8.5	1.7	24	40	6	34
24.2	7.4	1.8	16	34	11	23
12.3	3.8	1.2	10	18	8	10

I.T.A. Mean = 16.5

Analysis of variance among means: not significant

TABLE 28
Mean Scores of a Sub-Sample of the Population
After Instruction on a Writing Sample (N=103)

	D.M.S.	T.O.	I.T.A.
Number of Running Words	39.06	51.85	69.83*
Number of Different Words	24.85	31.13	38.03*
Number of Words Spelled Right	33.26	44.82	60.53*
Number of Polysyllabic Words	9.41	9.74	15.50*
Mechanics Ratio**	56.46	58.49	66.45

* Significant at .01 level
** Correct usage of capital, indentation, and punctuation

Table 29

Comparison of Reading Habits Among 3 2nd Grade Groups Who Were Taught Reading by Different Methods in 1st Grade: As Reported by Teachers for a 4 Week Period in Febrary 1966

	Method	Mean	Maximum	Minimum	Range
Number of Books Read Completely	D.M.S.	5.7	31	0	31
	T.O.	4.0	18	0	18
	I.T.A.	6.8	33	0	33
Number of Books Read Partially	D.M.S.	1.1	5	0	5
	T.O.	1.7	10	0	10
	I.T.A.	1.9	14	0	14
Eagerness to Read*	D.M.S.	2.9	5	1	
	T.O.	2.7	5	1	
	I.T.A.	3.2	5	1	
Maturity of Choice**	D.M.S.	3.1	5	1	
	T.O.	2.6	5	1	
	I.T.A.	3.1	5	1	

* Eagerness to Read
1. Child practically never chooses to read.
2. Between 1 & 3
3. Child chooses to read about ½ time.
4. Between 3 & 5
5. Child almost always chooses to read.

**Maturity of Choice
1. Child chooses books preferred by preschool and first grade children
2. Between 1 & 3
3. Child chooses books generally preferred by his own grade group
4. Between 3 & 5
5. Child tends to choose books generally preferred by considerably older children.

Table 30

Rating of Overall Competence of 2nd Grade Teachers
Sum of 2 Raters*

Method	Mean	High	Low	Range
DMS	6.90	9.00	5.00	4.00
TO	7.25	9.00	5.00	4.00
ITA	7.66	10.00	5.00	5.00

* Most Teachers were rated by 3 or 4 raters and ratings prorated to basis of 2 raters on an ascending scale of 1-5.

Analysis of Variance Among Group Means: not significant

Table 31

Instructional Time Reading
(Average No. of Minutes Per Day)

	Method	Mean	High	Low	Range
Instructional Time Reading-Direct Lesson	DMS	91.84	180	64	116
	TO	79.85	107	64	43
	ITA	72.93	86	43	43
Instructional Time Reading-Supportive Activities**	DMS	60.42	171	21	150
	TO	47.65	171	21	150
	ITA	52.03	122	21	100
Instructional Time Reading-Total Direct and Supportive Activities	DMS	152.37	240	97	143
	TO	127.55	182	97	85
	ITA	124.94	171	75	96

Analysis of Variance: Not significant

* Direct Lesson includes--All directed reading both oral and silent, phonics, vocabulary, seatwork done during Reading Period etc.

** Supportive activities include--Story time, writing stories not during Reading Period, reading in other subjects

Table 32

Description of 2nd Grade Classes

	Method	Mean	Maximum	Minimum	Range
Class Size*	DMS	26.5	28.0	17.0	11.0
	TO	25.7	29.0	17.0	12.0
	ITA	25.4	29.0	22.0	7.0

* This refers to size of class in which the child spent 2nd Grade and does not refer to grouping for test purposes

Pupil Attendence Total number of days absent	DMS	6.2	36.0	0.00	36.0
	TO	6.6	27.0	0.00	27.0
	ITA	6.9	36.0	0.00	36.0

Table 33

General Description of All Teachers Who Had Some Project 2nd Grade Children in Their Classes *

	Method	Mean	Maximum	Minimum	Range
Age of Teacher in Years	D.M.S.	29.5	52.0	22.0	30.0
	T.O.	36.2	56.0	22.0	34.0
	I.T.A.	36.2	60.0	23.0	37.0
Total Number of Years of Teaching Experience **of 2nd Grade Teachers**	D.M.S	5.0	16.0	00.0	16.0
	T.O.	8.9	35.0	00.0	35.0
	I.T.A.	10.8	35.0	00.0	35.0
Total Number of Years of Second Grade Teaching Experience	D.M.S.	1.5	4.0	0.0	4.0
	T.O	2.8	10.0	0.0	10.0
	I.T.A.	1.6	28.0	0.0	28.0
Number of Children The Teacher Has (as parent)	D.M.S.	.5	2.0	0.0	2.0
	T.O.	.8	3.0	0.0	3.0
	I.T.A.	.9	4.0	0.0	4.0
Teacher Attendance Total Number of Days Absent	D.M.S.	5.5	11.0	3.0	8.0
	T.O.	4.9	11.0	3.0	8.0
	I.T.A.	3.5	8.0	0.0	8.0

* All means for each group calculated by weighing the "Measure" for each teacher involved according to the number of children she had from that group.

Table 34
(September)
Metropolitan Readiness Tests
Raw and Adjusted Mean Scores

Comparison of 1965-66 1st Grades with 1964-65 1st Grades

Test	Word Meaning		Listening		Matching	
Method	Mean	Adjusted Mean	Mean	Adjusted Mean	Mean	Adjusted Mean
DMS(64-65)	9.1	9.5	9.4	9.6	6.3	6.9
TO	9.1	9.1	9.6	9.6	7.1	7.1
ITA	8.9	9.3	8.8	9.1	5.9	6.4
DMS(65-66)	9.5	8.7	10.6	10.0	8.3	7.2
F	.29	.32	6.86*	1.45	4.10	.44
LSD +			01-1.15 05- .84		01-2.1 05-1.54	

Test	Numbers		Copying		Alphabet	
Method	Mean	Adjusted Mean	Mean	Adjusted Mean	Mean	Adjusted Mean
DMS(64-65)	10.6	11.2	6.2	6.4	7.5	7.9
TO	11.5	11.5	7.3	7.4	9.7	9.8
ITA	9.7	10.4	6.2	6.7	8.3	9.0
DMS(65-66)	13.2	11.9	7.3	6.5	9.3	8.1
F	6.63***	1.20	1.67	1.08	1.89	1.64
LSD+	01-2.30 05-1.69					

Test	Total	
Method	Mean	Adjusted Mean
DMS(65-65)	49.1	51.4
TO	53.9	54.1
ITA	48.1	51.1
DMS(65-66)	58.2	52.6
F	3.82**	.43
LSD+	01-9.5 05-7.0	

Covariates: Chronological Age and Pintner-Cunningham Raw Score

*Significant at $p < .05$

**Significant at $p < .01$

***Significant at $p < .005$

+ LSD - Least Significant Difference

Table 35
(September)
Murphy-Durrell Reading Readiness Analysis
Raw and Adjusted Mean Scores

Comparison of 1965-66 1st Grades with 1964-65 1st Grades

Test	Phonemes		Total Letter Names		Learning Rate	
Method	Mean	Adjusted Mean	Mean	Adjusted Mean	Mean	Adjusted Mean
DMS(64-65)	19.9	21.4	27.2	27.8	7.5	7.7
T.O.	22.0	22.3	32.9	33.2	8.1	8.2
I.T.A.	21.4	23.9	29.4	31.0	7.1	7.7
DMS(65-66)	25.1	20.8	34.0	31.5	8.6	7.7
F	1.12	.48	3.01*	1.52	1.64	.40
LSD †			6.4			

Covariates: Chronological Age and Pintner Cunningham Raw Score

* Significant at $p < .05$

† LSD - Least Significant Difference @ $p < .05$

Table 36
Pintner-Cunningham Raw Score

7 D.M.S. 1st Grades, 1965-66

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
41.7	6.4	1.2	28	51	22	29
44.9	6.3	1.2	25	51	23	28
44.4	7.1	1.4	25	55	20	25
43.6	6.4	1.2	28	52	32	20
40.1	8.4	1.8	22	55	22	33
45.1	6.4	1.2	29	56	30	26
41.5	8.1	1.7	22	56	25	31

Mean = 43.1

Table 37
Pintner-Cunningham I. Q.

7 D.M.S. 1st Grades, 1965-66

101.9	14.8	2.8	28	125	59	66
109.8	11.9	2.3	25	128	84	44
108.0	15.6	3.1	25	134	84	50
104.0	12.7	2.4	28	123	76	47
99.1	14.3	3.0	22	132	71	61
110.1	13.1	2.4	29	142	88	54
104.6	15.3	3.2	22	139	81	58

Mean = 105.4

Table 38
Mean Age of Children

7 D.M.S. 1st Grades, 1965-66

78.4	6.0	1.1	28	94	70	24
77.4	4.2	.8	25	89	71	18
78.5	3.1	.6	25	84	72	12
77.4	4.5	.8	28	91	71	20
78.2	4.7	1.0	20	91	70	21
77.5	2.6	.5	29	82	73	9
76.7	3.5	.7	22	84	70	14

Mean = 77.7

Table 39
Teacher Rating of Overall Competence

7 D.M.S. 1st Grades, 1965-66

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
4.0	.0	.0	28	4	4	0
4.0	.0	.0	25	4	4	0
3.0	.0	.0	27	3	3	0
4.0	.0	.0	29	4	4	0
3.0	.0	.0	22	3	3	0
2.0	.0	.0	29	2	2	0
3.0	.0	.0	22	3	3	0

Mean = 3.2

Table 40
Pupil Attendance - Total Number of Days Absent

7 D.M.S. 1st Grades, 1965-66

7.4	4.2	.8	27	16	2	14
6.4	4.5	.9	24	20	2	18
11.6	8.5	1.7	25	35	1	34
8.1	4.5	.8	26	18	1	17
8.6	5.5	1.2	20	22	1	21
8.2	5.3	1.0	28	19	2	17
8.7	5.3	1.2	17	21	1	20

Mean - 8.4

Table 41
Class Size

7 D.M.S. 1st Grades, 1965-66

28.0	.0	.0	28	28	28	.0
28.0	.0	.0	28	28	28	.0
27.0	.0	.0	27	27	27	.0
28.0	.0	.0	28	28	28	.0
23.0	.0	.0	23	23	23	.0
29.0	.0	.0	29	29	29	.0
22.0	.0	.0	22	22	22	.0

Mean - 26.4

Table 42
(September)
Murphy-Durrell Reading Readiness Analysis
Mean Total Raw Scores on Phonemes Test
7 D.M.S. 1st Grades, 1965-66

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
26.8	14.4	2.7	28	48	6	42
34.1	10.5	2.1	25	48	11	37
27.6	11.8	2.3	25	45	4	41
28.3	12.0	2.2	28	48	2	46
21.0	14.3	3.1	21	48	0	48
20.2	16.9	3.1	29	78	0	78
18.9	12.2	2.6	21	41	0	41

Mean - 25.3

Table 43
(September)
Murphy-Durrell Reading Readiness Analysis
Mean Total Letter Names
7 D.M.S. 1st Grades 1965-66

32.7	16.0	3.0	28	51	6	45
39.2	12.2	2.4	25	51	13	38
40.8	9.2	1.8	25	52	16	36
35.2	12.0	2.8	28	51	13	38
30.8	14.5	3.1	21	50	6	44
32.1	13.2	2.4	29	49	7	42
27.4	14.5	3.1	21	51	6	45

Mean = 34.0

Table 44
(September)
Murphy Durrell Reading Readiness Analysis
Mean Learning Rate
7 D.M.S. 1st Grades 1965-66

9.9	4.9	.9	28	18	4	14
9.8	4.1	.8	25	18	5	13
9.7	5.0	1.0	25	18	1	17
8.0	4.5	.8	28	17	0	17
9.1	4.2	.9	21	18	4	14
6.7	3.9	.7	29	17	0	17
7.0	3.4	.7	21	18	2	16

Mean = 8.6

Table 45
(September)
Metropolitan Readiness Test
Mean Raw Scores on Word Reading Test

7 D.M.S. 1st Grades, 1965-66

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
8.4	2.9	.5	28	15	3	12
12.4	1.9	.3	25	15	8	7
10.2	2.2	.4	25	14	6	8
9.5	2.7	.5	28	15	4	11
8.0	3.6	.7	22	14	1	13
9.6	2.7	.5	29	14	3	11
8.7	2.7	.5	22	13	4	9

Mean - 9.5

Table 46
(September)
Metropolitan Readiness Test
Mean Raw Scores Listening Test

7 D.M.S. 1st Grades, 1965-66

10.0	2.8	.5	28	14	2	12
11.4	1.9	.3	25	15	9	6
11.4	1.8	.3	25	15	7	8
10.9	2.2	.4	28	15	7	8
10.3	2.9	.6	22	15	3	12
10.8	2.6	.4	29	14	3	11
9.2	2.2	.4	22	13	6	7

Mean = 10.6

Table 47
(September)
Metropolitan Readiness Test
Mean Raw Scores on Matching Test

7 D.M.S. 1st Grades, 1965-66

8.2	3.1	.6	28	13	2	11
8.0	2.7	.5	25	12	1	11
9.2	3.4	.6	25	14	0	14
9.1	2.9	.5	28	14	3	11
6.9	4.4	.9	22	14	0	14
9.3	3.2	.6	29	14	2	12
7.4	4.0	.8	22	13	0	13

Mean - 8.3

Table 48
(September)
Metropolitan Readiness Test
Mean Raw Scores on Numbers Test

7 D.M.S. 1st Grades, 1965-66

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
13.8	6.0	1.1	28	23	1	22
15.5	4.0	.8	25	23	7	16
13.5	5.3	1.0	25	25	5	20
15.2	3.8	.7	28	21	7	14
11.1	4.9	1.0	22	21	4	17
13.1	4.5	.8	29	23	5	18
10.6	4.6	.9	22	19	3	16

Mean = 13.3

Table 49
(September)
Metropolitan Readiness Test
Mean Raw Scores on Copying Test

7 D.M.S. 1st Grades, 1965-66

8.0	3.0	.5	28	14	2	12
7.6	2.1	.4	25	11	3	8
8.0	3.2	.6	25	13	0	13
7.7	2.0	.3	28	12	5	7
5.3	3.5	.7	22	13	0	13
6.9	2.3	.4	29	12	1	11
7.0	3.2	.6	22	13	1	12

Mean = 7.2

Table 50
(September)
Metropolitan Readiness Test
Mean Raw Scores on Alphabet Test

7 D.M.S. 1st Grades, 1965-66

8.3	6.0	1.1	28	16	0	16
12.3	3.0	.6	25	16	6	10
11.7	4.5	.9	25	21	2	19
8.3	4.6	.8	28	16	0	16
8.3	5.2	1.1	22	16	0	16
9.7	4.2	.7	29	16	2	14
6.9	5.1	1.1	22	16	0	16

Mean = 9.4

Table 51
(September)
Metropolitan Readiness Test
Mean Total Raw Scores

7 D.M.S. 1st Grades, 1965-66

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
57.5	18.9	3.5	28	90	13	77
67.4	11.3	2.3	25	84	40	44
64.5	15.2	3.0	25	89	26	63
61.0	11.7	2.2	28	81	38	43
50.2	20.3	4.3	22	83	14	69
59.7	14.1	2.6	29	87	29	58
50.0	17.4	3.7	22	79	22	57

Mean = 58.6

Table 52
(May)
Stanford Spelling Test
Mean Total Raw Scores

7 D.M.S. 1st Grades, 1965-66

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
14.2	4.5	.9	25	20	2	18
13.3	5.8	1.2	24	20	1	19
13.3	5.8	1.2	23	20	1	19
16.1	3.7	7	26	20	7	13
11.3	5.9	1.4	16	20	2	18
15.2	5.3	1.0	26	20	1	19
11.1	6.0	1.4	17	20	2	18

Mean = 13.5

Table 53
(May)
Stanford Word Study Test
Mean Total Raw Scores

7 D.M.S. 1st Grades, 1965-66

38.8	10.1	2.0	25	52	5	47
40.8	10.3	2.1	23	53	16	37
38.0	9.6	2.0	23	53	17	36
40.6	7.5	1.4	26	53	21	32
38.6	10.3	2.5	16	53	22	31
39.6	8.7	1.7	26	56	20	26
34.7	8.2	2.0	17	46	19	27

Mean = 38.7

Table 54
(May)
Stanford Word Reading Test
Mean Total Raw Scores

7 D.M.S. 1st Grades, 1965-66

Mean	Standard Deviation	Standard Error of the Mean	Sample Size	Maximum	Minimum	Range
20.9	8.1	1.6	25	37	4	33
24.4	8.6	1.7	24	35	9	26
23.1	6.9	1.4	23	35	11	24
24.9	5.8	1.1	26	33	13	20
21.3	7.9	1.9	16	35	11	24
25.5	7.0	1.3	26	39	11	28
16.5	6.9	1.6	17	30	5	25

Mean = 22.4

Table 55
(May)
Stanford Paragraph Meaning Test
Mean Total Raw Scores

7 D.M.S. 1st Grades, 1965-66

18.4	9.3	1.9	25	37	0	37
25.0	10.9	2.2	23	37	6	31
21.0	8.7	1.8	23	38	3	35
23.3	8.1	1.5	26	37	7	30
22.8	9.9	2.5	16	38	9	29
26.6	7.4	1.4	26	38	11	27
18.7	9.2	2.2	17	37	1	36

Mean = 22.3

Table 56
(May)
Stanford Vocabulary Test
Mean Total Raw Score

7 D.M.S. 1st Grades, 1965-66

23.6	5.8	1.1	25	35	14	21
24.1	5.6	1.1	24	34	13	21
22.8	6.7	1.4	23	35	9	26
22.4	6.5	1.2	26	34	9	25
20.3	6.7	1.6	16	30	9	21
21.0	6.7	1.3	26	33	7	26
19.0	6.7	1.6	17	30	9	21

Mean = 21.9

Table 57

General Description of Teachers of 1965-66 DMS 1st Grades

	Age	Years Teaching Exp.*	Years 1st Grade**	Marital Status***	Number of Children#	Highest Degree##	Type of Certificate###	Overall**** Comp.
	56	23	9	1	1	0	2	4
	25	0	0	1	0	3	1	4
	35	4	11	1	3	3	1	3
	48	18	17	1	2	1	2	4
	31	8	8	0	0	1	2	3
	28	5	5	0	0	3	2	2
	40	8	8	1	2	2	2	3
Av	37.6	9.4	6.9		1.1			3.3

* Does not include current year

** Does not include current year

*** 0: Single
1: Married (currently)

**** Overall Teacher Competence
0: Incompetent
1: Poor
2: Adequate
3: Good
4: Excellent

# As Parent

## Highest Degree Held
0: Less than Bachelor's-----1
1: Bachelor's Degree--------2
2: More than Bachelor's but less than Master's-----------------1
3: Master's Degree----------3

### Type of Certificate
1: Limited Elementary-------2
2: Permanent Elementary-----5

Table 58

Description of Community of 1965-66 DMS 1st Grades

Mean Number of Years Education Completed by Adults living Within the School's Community	1965-66 1st Grades
11 years	2
12 years	4
13 years	1
Mean Years Education	11.9
Median Income in Community By Family and Unrelated Adults	**1965-66 1st Grades**
$6001--$7000	4
$7001--$8000	2
$8001--$9000	1
Population of the Community in Which the School is Located	**1965-66 1st Grades**
2501--5000	5
5001--10,000	2

All the Schools Were in a Suburban Type of Community

Table 59

Some General Comparisons Between 1964-65 and 1965-66 1st Grades

	DMS(64-65)	TO	ITA	DMS(65-66)
Mean Age of Teacher	35.9	31.0	39.7	37.6
Years Teaching Exp.	9.9	6.0	10.7	9.4
Years Teaching 1st Grade	3.7	3.0	7.6	6.9
No. of Children Teacher Has	.86	.86	.71	1.1
Overall Competence	2.4	3.0	2.9	3.3
Community Education Level	11.1	12.3	11.0	11.9
Pupil Attendance(days absent)	10.3	10.2	8.8	8.4
Class Size	24.0	23.4	23.9	26.4
Chronological Age (in months)	77.0	76.6	76.2	77.8
Pintner-Cunningham Raw Score	38.1	39.8	38.0	43.1
Pintner-Cunningham I.Q.	97.1	101.3	98.2	105.4

Table 60

Correlation Matrix of Certain 1st Grade Variables (Top figure is for original 1964-65 1st Grades; Bottom figure includes 7 additional 1st Grades started 1965-66. Underlined coefficients are significant at .01 level)

Variable No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age		.47 .49	.31 .41	.48 .56	.38 .31	.42 .48	.30 .39	.33 .40	.50 .42	.33 .47	.44 .52	.22 .28	.43 .52	.16 .30
2. M-D Phonemes	.47 .49		.61 .69	.36 .53	.72 .72	.73 .76	.53 .56	.48 .48	.69 .66	.31 .42	.48 .55	.35 .47	.60 .61	.53 .52
3. M-D Letter Names	.31 .41	61. 69.		.26 .42	.52 .58	.80 .84	.09 .32	.21 .35	.40 .41	.29 .44	.16 .32	.33 .38	.36 .52	.33 .49
4. M-D Learning Rate	.48 .56	.36 .53	.26 .42		.27 .31	.45 .52	.35 .68	.60 .50	.57 .55	.48 .48	.48 .52	.08 .24	.60 .56	.51 .46
5. Met Word Meaning	.38 .31	.72 .72	.52 .58	.27 .31		.66 .71	.43 .48	.24 .34	.56 .53	.28 .32	.38 .41	.41 .39	.36 .45	.30 .45
6. Met Total	.42 .48	.73 .76	.80 .84	.45 .52	.66 .71		.32 .53	.48 .58	.62 .54	.50 .65	.41 .54	.41 .43	.61 .75	.56 .72
7. Stan Word Reading	.30 .39	.53 .56	.09 .32	.35 .38	.43 .48	.32 .53		.81 .84	.80 .66	.64 .71	.78 .80	.63 .54	.47 .61	.45 .57
8. Stan Par Meaning	.33 .40	.48 .48	.21 .35	.60 .50	.24 .34	.48 .58	.81 .84		.78 .58	.83 .82	.80 .82	.48 .42	.59 .69	.57 .66
9. Stan Voc.	.50 .42	.69 .66	.40 .41	.57 .55	.56 .53	.62 .54	.80 .66	.78 .58		.62 .43	.77 .66	.59 .57	.81 .56	.75 .49
10. Stan Spell.	.33 .47	.31 .42	.29 .44	.48 .48	.28 .32	.50 .65	.64 .71	.83 .82	.62 .43		.67 .74	.50 .49	.53 .73	.52 .68
11. Stan Word St.	.44 .52	.48 .55	.16 .32	.48 .52	.38 .41	.41 .54	.78 .80	.80 .82	.77 .66	.67 .74		.49 .51	.60 .68	.49 .57
12. Teacher Rating	.22 .28	.35 .47	.33 .38	.08 .24	.41 .39	.41 .43	.63 .54	.48 .42	.59 .57	.50 .49	.49 .51		.36 .37	.35 .32
13. P-C Raw Score	.43 .52	.60 .61	.36 .52	.60 .56	.36 .45	.61 .75	.47 .61	.59 .69	.81 .56	.53 .73	.60 .68	.36 .37		.94 .95
14. P-C. IQ.	.16 .30	.53 .52	.33 .49	.51 .46	.30 .45	.56 .72	.45 .57	.57 .66	.75 .49	.52 .68	.49 .57	.35 .32	.94 .95	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Age		.47	.31	.48	-.44	.39	.38	.42	.18	.39	.45	.32	.42	-.10	.22	.43	.16	-.23	.30	.33	.50	.33	.44	.51	.28	-.36	1.
M-D Phonemes	.47		.61	.36	-.29	.65	.72	.55	.53	.53	.52	.60	.73	.05	.35	.60	.53	-.14	.53	.48	.69	.31	.48	.58	.51	-.09	2.
M-D Letter Names	.31	.61		.26	-.18	.29	.52	.41	.39	.51	.62	.93	.80	-.03	.33	.36	.33	-.09	.09	.21	.40	.29	.16	.45	.37	-.05	3.
M-D Learning Rate	.48	.36	.26		-.02	.30	.27	.41	.39	.44	.27	.43	.45	.38	.08	.60	.51	-.03	.35	.60	.57	.48	.48	.40	.52	-.07	4.
Thurs. Pattern Copying	-.44	-.29	-.18	-.02		-.15	-.42	-.06	.20	.03	.00	-.19	-.07	.31	-.28	.10	.27	.14	-.03	.16	.00	.20	.02	-.10	.15	.18	5.
Thurs. Ident. Form	.39	.65	.29	.30	-.15		.59	.18	.16	.22	.09	.30	.30	.13	.36	.46	.38	-.08	.28	.24	.44	.15	.39	.32	.34	.02	6.
Met. Word Meaning	.38	.72	.52	.27	-.42	.59		.65	.28	.47	.35	.55	.66	-.16	.41	.36	.30	-.23	.43	.24	.56	.28	.38	.45	.41	.18	7.
Met. Listening	.42	.55	.41	.41	-.06	.18	.65		.53	.71	.37	.44	.71	.17	.31	.53	.47	-.06	.45	.52	.62	.58	.50	.44	.61	.15	8.
Met. Matching	.18	.53	.39	.39	.20	.16	.28	.53		.63	.49	.44	.72	-.01	.21	.62	.65	.03	.27	.47	.45	.43	.32	.30	.57	.09	9.
Met. Numbers	.39	.53	.51	.44	.03	.22	.47	.71	.63		.76	.58	.85	.29	.48	.65	.59	-.20	.37	.59	.68	.59	.14	.52	.71	.16	10.
Met. Copying	.45	.52	.62	.27	.00	.09	.35	.37	.49	.76		.66	.80	-.04	.36	.44	.35	-.21	.18	.31	.44	.33	.18	.41	.39	.00	11.
Met. Alphabet	.32	.60	.93	.43	-.19	.30	.55	.44	.44	.58	.66		.86	-.03	.33	.42	.38	-.02	.15	.31	.44	.32	.25	.39	.47	.12	12.
Met. Total	.42	.73	.80	.45	-.07	.30	.66	.71	.72	.85	.80	.86		.01	.41	.61	.56	-.10	.32	.48	.62	.50	.41	.53	.65	.14	13.
Detroit Word Rec-1	-.10	.05	-.03	.38	.31	.13	-.16	.17	-.01	.29	-.04	-.03	.01		.03	.26	.35	.00	.25	.56	.32	.46	.25	.15	.35		14.
Teacher Rat-1	.22	.35	.33	.08	-.28	.26	.41	.31	.21	.48	.36	.33	.41	.03		.36	.35	-.51	.63	.48	.59	.50	.49	.70	.52	.31	15.
P-C Raw Score	.43	.60	.36	.60	.10	.46	.36	.53	.62	.65	.44	.42	.61	.26	.36		.94	.06	.47	.59	.81	.53	.60	.55	.65	.11	16.
P-C IQ	.16	.53	.33	.51	.27	.38	.30	.47	.65	.59	.35	.38	.56	.35	.35	.94		.07	.45	.57	.75	.52	.49	.45	.62	.22	17.
Pupil Attend 1	-.23	-.14	-.09	-.03	.14	-.08	-.23	-.06	.03	.20	-.21	-.02	-.10	.00	-.51	.06	.07		-.38	-.22	-.39	-.12	-.26	-.44	-.16	.12	18.
Stan Wrd Read1	.30	.53	.09	.35	-.03	.28	.43	.45	.27	.37	.18	.15	.32	.25	.63	.47	.45	-.38		.81	.80	.64	.78	.74	.67	.24	19.
Stan Par Mean1	.33	.48	.21	.60	.16	.24	.24	.52	.47	.59	.31	.31	.48	.56	.48	.59	.57	-.22	.81		.78	.83	.80	.73	.88	.17	20
Stan Voc 1	.50	.69	.40	.57	.00	.44	.56	.62	.45	.68	.44	.44	.62	.32	.59	.81	.75	-.39	.80	.78		.62	.77	.77	.75	.15	21.
Stan Spell 1	.33	.31	.29	.48	.20	.15	.28	.58	.43	.59	.33	.32	.50	.46	.50	.53	.52	-.12	.61	.83	.62		.67	.72	.78	.15	22.
Stan Wd St 1	.44	.48	.16	.48	.02	.39	.38	.50	.32	.44	.18	.25	.41	.25	.49	.60	.49	-.26	.78	.80	.77	.67		.76	.78	.36	23.
Instant Word	.51	.58	.45	.40	-.10	.32	.45	.44	.30	.52	.41	.39	.53	.15	.70	.55	.45	-.44	.74	.73	.77	.72	.76		.72	.00	24.
Detroit Word Rec 2	.28	.51	.37	.52	.15	.34	.41	.61	.57	.71	.39	.47	.65	.35	.52	.65	.62	-.16	.67	.88	.75	.78	.78	.72		.30	25.
Age Teacher 2	-.36	-.09	-.05	-.07	.18	.02	.18	.15	.09	.16	.00	.12	.14	.03	.31	.11	.22	-.18	.21	.17	.15	.15	.36	.00	.30		26.

Table 6. Correlation Matrix At End of Second Grade

Table 61 ctd. (b) SECOND GRADE CORRELATION MATRIX

	1	2	3	4	5,	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Teaching Exp.	-.33	-.32	-.28	-.11	.18	-.11	-.00	-.05	-.20	-.02	-.05	-.06	-.10	-.04	.17	-.05	-.00	-.06	.11	.02	-.02	-.02	.23	-.15	.13	.90	27.
2nd Grade Exp.	-.05	-.27	-.16	.08	.12	-.09	-.17	-.01	-.14	.06	.00	.05	-.04	.16	.11	-.15	-.19	-.02	.16	.33	-.02	.18	.30	-.02	.40	.55	28.
Class Size 2	-.22	.14	.24	-.04	.27	-.03	.25	.25	.23	.33	.08	.14	.27	.31	.14	.10	.25	-.16	.04	.07	.19	.24	.06	.12	.04	.10	29.
Pupil Attend 2	.24	.25	-.20	-.28	-.36	.37	.11	-.07	-.14	-.11	.00	-.20	-.11	-.15	.22	.00	-.08	-.01	.33	.06	.06	-.14	.02	.02	.03	-.02	30.
Teacher Attend 2	-.04	-.27	-.09	-.15	.16	-.09	.10	.23	.09	.27	.06	.01	.15	-.07	-.28	-.02	-.04	.26	-.33	-.16	-.18	.05	-.08	-.36	.05	.35	31.
Stan 2 Word Meaning	.10	.35	.36	.19	.10	.02	.25	.36	.28	.51	.41	.41	.46	.18	.70	.45	.46	-.37	.75	.67	.72	.53	.64	.66	.67	.38	32.
Stan 2 Par Mean	.17	.28	.28	.32	.22	-.01	.15	.41	.27	.52	.38	.31	.40	.40	.59	.47	.49	-.41	.76	.77	.74	.68	.66	.69	.70	.27	33.
Stan 2 Sci-Sox	.17	.39	.39	.15	-.16	.41	.56	.39	.12	.48	.28	.36	.43	.04	.52	.61	.58	-.25	.32	.16	.63	.24	.41	.47	.34	.30	34.
Stan 2 Spell	-.12	-.00	-.15	.12	.27	-.25	-.11	.20	.08	.24	-.01	-.11	.02	.38	.40	.20	.24	-.19	.66	.58	.46	.45	.53	.42	.43	.21	35.
Stan 2 Word Study	.10	.34	.17	.09	.07	.12	.04	.13	.07	.20	.07	.12	.14	.34	.60	.36	.36	-.32	.77	.66	.64	.45	.66	.68	.51	.12	36.
Stan 2 Lang	.40	.55	.58	.35	-.00	.40	.40	.44	.27	.60	.44	.48	.54	.42	.55	.56	.53	-.33	.58	.63	.76	.66	.57	.76	.63	-.08	37.
Stan 2 Arith Comp	.15	.18	-.14	.35	.27	.32	.03	.24	.10	.23	-.12	-.07	.03	.58	-.02	.50	.50	.04	.50	.61	.55	.43	.53	.22	.54	.10	38.
Stan 2 Arith Con	.39	.53	.41	.40	-.05	.39	.30	.45	.23	.64	.39	.43	.50	.47	.40	.66	.57	-.09	.55	.68	.77	.51	.58	.60	.71	-.05	39.
Books Read Comp	-.07	.12	-.14	-.06	-.25	-.00	.21	-.24	-.30	-.12	.06	-.08	-.10	-.12	.01	-.47	-.51	-.47	.16	-.05	-.09	-.31	-.02	.05	-.16	.01	40.
Books Read Part	-.21	-.37	-.27	.03	.20	-.42	-.22	-.18	-.26	-.28	-.24	-.10	-.26	.07	-.17	-.17	-.14	-.07	.25	.24	-.16	.07	-.00	-.22	.05	.22	41.
Eagerness Read	.20	-.03	-.26	.20	-.25	-.02	.16	-.07	-.48	-.06	.06	-.17	-.17	-.03	-.03	-.09	-.21	-.46	.26	-.05	.18	-.28	.11	.11	-.15	.03	42.
Maturity Choice	.12	.00	-.16	.17	-.27	-.03	.20	-.07	-.34	-.14	.22	-.02	.00	-.12	.04	-.14	-.28	-.33	.09	-.06	.08	-.28	.09	.12	-.00	.01	43.
Teacher Rating 2	.06	.31	-.06	.07	-.06	.27	.53	.28	-.08	.13	.14	.04	.14	.04	.34	.13	.16	-.37	.62	.26	.46	.19	.39	.23	.23	.42	44.
Ins Time Read	-.14	-.25	-.41	-.15	.24	-.09	-.14	-.03	-.13	.06	-.16	-.35	-.21	.30	-.12	-.08	-.04	.20	-.26	-.17	-.16	-.21	-.27	-.52	-.25	.11	45.
Ins Time Supp	.17	-.32	-.26	-.23	-.26	-.26	-.33	-.25	-.32	-.20	-.02	-.37	-.35	-.13	-.06	-.55	-.63	-.49	-.23	-.27	-.32	-.26	-.30	-.13	-.35	-.39	46.
Ins. Time Total	.01	-.15	-.53	-.29	.01	-.26	-.36	-.21	-.34	-.10	-.15	-.56	-.43	.15	-.40	-.16	-.49	-.19	-.38	-.34	-.36	-.37	-.15	-.53	-.47	-.20	47.
Stan 1 Word Read 2	.20	.38	.08	.29	.07	.10	.35	.31	.18	.30	.24	.19	.30	.07	.47	.36	.33	-.38	.87	.65	.71	.44	.71	.61	.57	.33	48.
Stan 1 Par Mean 2	.29	[illegible]	.26	.10	.19	.18	.49	.54	.35	.58	.43	.34	.53	[illegible]	.45	.53	.51	-.33	.83	.76	.80	.66	.69	.65	.73	.34	49.
Stan 1 Voc 2	.27	.57	.05	.32	.03	.38	.62	.57	.47	.53	.27	.11	.45	.08	.42	.58	.57	-.29	.75	.62	.75	.53	.60	.58	.68	.16	50.
Stan 1 Spell 2	.13	.16	-.11	.32	.27	.01	.17	.53	.25	.40	.06	-.02	.21	.47	.17	.44	.46	-.01	.68	.68	.58	.65	.55	.33	.58	.23	51.
Stan 1 Word Study 2	.29	.44	-.03	.27	.16	.07	.27	.37	.26	.47	.38	.03	.32	.25	.43	.46	.41	.31	.85	.73	.72	.56	.68	.66	.58	.13	52.

SECOND GRADE CORRELATION MATRIX

Table 61 ctd (c)

	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Age	-.33	-.05	-.22	.24	-.04	.10	.17	.17	-.12	.10	.37	.15	.39	-.07	-.21	.20	.12	.06	-.14	.17	.01	.20	.20	.27	.13	.29	1.
M-D Phonemes	-.32	-.27	.14	.25	-.27	.35	.28	.39	-.00	.34	.55	.18	.53	.12	-.37	-.03	.00	.31	-.25	-.32	-.45	.38	.50	.57	.16	.44	2.
M-D Letter Names	-.28	-.16	.24	-.20	-.09	.36	.28	.39	-.15	.17	.58	-.14	.41	-.14	-.27	-.26	-.16	-.06	-.41	-.26	-.53	.08	.26	.05	-.11	-.03	3.
M-D Learn Rate	-.11	.08	-.04	-.28	-.15	.19	.32	.15	.12	.09	.35	.35	.40	-.06	.03	.20	.17	.07	-.15	-.23	-.29	.29	.40	.32	.32	.27	4.
Thurstone Pattern Copy	.18	.12	.27	-.36	.16	.10	.22	-.16	.27	.07	-.00	.27	-.05	-.25	.20	-.25	-.27	-.06	.24	-.26	.01	.07	.19	.03	.27	.16	5.
Thurstone Ident Form	-.11	-.08	-.03	.37	-.09	.02	-.01	.41	-.25	.12	.40	.32	.39	-.00	-.42	-.02	-.03	.27	-.09	-.26	-.26	.10	.18	.38	.01	.07	6.
Met Word Mean	-.00	-.17	.25	.11	.10	.25	.15	.56	-.11	.04	.40	.03	.30	.21	-.22	.16	.20	.53	-.14	-.33	-.36	.35	.49	.62	.17	.27	7.
Met Listening	-.05	-.01	.25	-.07	.23	.36	.41	.39	.20	.13	.44	.24	.45	-.24	-.18	-.07	.07	.28	-.03	-.25	-.27	.31	.54	.57	.53	.37	8.
Met Matching	-.20	-.14	.23	-.14	.09	.28	.27	.12	.08	.07	.27	.10	.23	-.30	-.26	-.48	-.34	-.08	-.13	-.32	-.34	.18	.35	.47	.25	.26	9.
Met Numbers	-.02	.06	.33	-.11	.27	.51	.52	.48	.24	.20	.60	.23	.64	-.12	-.28	-.06	.14	.13	.06	-.20	-.10	.30	.58	.53	.40	.47	10.
Met Copying	-.05	.00	.08	.00	.06	.41	.38	.28	-.01	.07	.44	-.12	.39	.06	-.24	.06	.22	.14	-.16	-.02	-.15	.24	.43	.27	.06	.38	11.
Met Alphabet	-.06	.05	.14	-.20	.01	.41	.31	.36	-.11	.12	.48	-.07	.43	-.08	-.10	-.17	-.02	.04	-.35	-.37	-.56	.19	.34	.11	-.02	.03	12.
Met Total	-.10	-.04	.27	-.14	.15	.46	.40	.43	.02	.14	.54	.03	.50	-.10	-.26	-.17	.00	.14	-.21	-.35	-.13	.30	.53	.45	.21	.32	13.
Detroit Word Rec I	-.01	.16	.31	-.15	-.07	.18	.40	.04	.38	.34	.42	.58	.47	-.12	.07	-.03	-.12	.04	.30	-.13	.15	.07	.30	.08	.47	.25	14.
Teacher Rating I	.17	.11	.14	.22	-.28	.70	.59	.52	.40	.60	.55	-.02	.40	.01	-.17	-.03	.04	.34	-.42	-.06	-.40	.47	.45	.42	.17	.43	15.
P-C Raw Score	-.05	-.15	.10	.00	-.02	.45	.47	.61	.20	.36	.56	.50	.66	-.47	-.47	-.09	-.14	-.13	-.08	-.55	.46	.36	.53	.58	.44	.46	16.
P-C IQ	-.00	-.19	.25	-.08	-.04	.46	.49	.58	.24	.36	.53	.50	.57	-.51	-.44	-.21	-.28	.16	-.04	-.63	-.19	.33	.54	.57	.46	.41	17.
Pupil Attend 1	-.06	-.02	-.16	-.01	.26	-.37	-.41	-.25	-.19	-.32	-.33	.04	-.09	-.47	-.07	-.46	-.33	-.37	.20	-.49	-.19	-.38	-.33	-.29	-.01	-.34	18.
Stan Wrd Read 1	.11	.16	.04	.33	-.33	.75	.76	.32	.66	.77	.58	.50	.55	.16	.25	.26	.09	.62	-.26	-.23	-.38	.87	.83	.75	.68	.85	19.
Stan Par Mean 1	.02	.33	.07	.06	-.16	.67	.77	.16	.58	.66	.63	.61	.68	-.05	.24	-.05	-.06	.26	-.17	-.27	-.34	.65	.76	.62	.68	.73	20.
Stan Voc 1	-.02	-.02	.19	.06	-.18	.72	.74	.63	.46	.64	.76	.55	.77	-.09	-.16	.18	.08	.46	-.16	-.32	-.36	.71	.80	.75	.58	.72	21.
Stan Spell 1	-.15	-.02	.18	.24	-.05	.53	[illegible]	.24	.45	.45	.66	.43	.51	-.31	.07	-.28	-.28	.19	-.21	-.26	-.37	.44	.66	.53	.65	.56	22.
Stan Wd St 1	.23	.30	.06	.02	-.08	.64	.66	.41	.53	.66	.57	.53	.58	-.02	-.00	.11	.09	.39	-.27	-.30	-.45	.71	.69	.60	.55	.68	23.
Instant Wrd	-.15	-.02	.12	.02	-.36	.66	.69	.47	.42	.68	.76	.22	.60	.05	-.22	.11	.12	.23	-.52	-.13	-.53	.61	.65	.58	.33	.66	24.
Detroit Wrd Rec 2	.13	.40	.04	.03	.05	.67	.70	.34	.43	.51	.63	.54	.71	-.16	.05	-.15	-.00	.23	-.25	-.35	-.47	.57	.73	.68	.58	.58	25.
Age Teacher 2	.90	.55	.10	-.02	.35	.38	.27	.30	.24	.12	-.08	.10	-.05	.01	.22	.03	.01	.42	.11	-.39	-.20	.33	.34	.16	.23	.13	26.

Table 61 ctd. (d) 2nd Grade Correlation Matrix

	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Teaching Exp		.68	-.18	.07	.34	.26	.18	.17	.19	.01	-.25	.08	-.12	.10	.34	.27	.25	.44	.14	-.21	-.04	.28	.22	.04	.15	.10	27.
2nd Grade Exp	.68		-.48	.27	.28	.28	.26	-.26	.18	.12	-.13	.28	.12	.05	.72	.09	.14	.14	-.05	-.02	.03	.24	.17	-.04	.22	.08	28.
Class Size 2	-.18	-.48		-.61	.18	.08	.09	.34	.19	.10	.32	-.07	.02	.05	-.35	-.28	-.18	.03	.25	-.28	.00	-.02	.16	.10	.10	.06	29.
Pupil Attend 2	.07	.27	-.61		-.18	.01	-.10	-.16	-.16	-.16	-.14	.17	.12	.01	.06	.04	-.08	.25	.17	.06	.18	.12	-.01	.22	.03	.17	30.
Teacher Attend 2	.34	.28	.18	-.18		-.18	-.18	.09	-.18	-.48	-.18	.18	-.04	-.27	.06	-.16	-.03	-.05	.60	-.16	.38	-.20	.00	.05	.24	-.16	31.
Stan 2 Wrd Mean	.26	.28	.08	.01	-.18		.93	.51	.76	.81	.68	.38	.68	-.02	.18	.12	.14	.46	-.36	-.18	-.43	.83	.80	.51	.57	.71	32.
Stan 2 Par Mean	.18	.26	.09	-.10	-.18	.93		.44	.78	.77	.76	.50	.70	-.09	.20	.20	.11	.44	-.34	-.04	-.32	.79	.84	.53	.70	.75	33.
Stan 2 Sci-Soc	.17	-.26	.34	-.16	.09	.51	.44		.24	.33	.61	.23	.54	-.15	-.55	.24	.21	.40	-.14	.28	-.32	.37	.48	.47	.25	.31	34.
Stan 2 Spell	.19	.18	.19	-.16	-.18	.76	.78	.24		.76	.47	.44	.48	.06	.27	.16	.19	.36	-.13	-.05	-.15	.75	.63	.39	.69	.72	35.
Stan 2 Wrd Study	.01	.12	.10	.16	-.48	.81	.77	.33	.76		.64	.44	.64	-.00	-.13	-.00	-.09	.28	-.32	-.16	-.39	.70	.57	.35	.45	.65	36.
Stan 2 Lang	-.25	-.13	.32	-.14	-.18	.68	.76	.61	.47	.64		.45	.80	-.16	-.33	-.02	-.01	.31	-.34	-.07	-.34	.53	.68	.49	.48	.54	37.
Stan 2 Arith Comp	.08	.28	-.07	.17	.18	.38	.50	.23	.44	.44	.45		.68	-.29	.21	.06	-.12	.29	.29	-.26	.05	.47	.56	.52	.79	.49	38.
Stan 2 Arith Con	-.12	.13	.02	.12	-.04	.68	.70	.54	.48	.64	.80	.68		-.18	-.13	.09	.14	.22	-.08	-.21	-.22	.53	.64	.52	.58	.58	39.
Books Read Comp	.10	.05	.05	.01	-.27	-.02	-.09	-.15	.06	-.00	-.16	-.29	-.18		.36	.60	.72	.38	-.13	.30	.24	.30	.13	.08	-.23	.25	40.
Books Read Part	.34	.72	-.35	.06	.06	.18	.20	-.55	.27	.13	-.33	.21	-.13	.36		.18	.11	.19	.17	.03	.15	.38	.21	-.05	.30	.13	41.
Eagerness Read	.27	.09	-.28	.04	-.16	.12	.20	.24	.16	-.00	-.02	.06	.09	.60	.18		.85	.56	-.04	.38	.46	.44	.34	.23	.10	.45	42.
Maturity Choice	.24	.14	-.18	-.08	-.03	.14	.11	.21	.19	-.09	-.01	-.12	.14	.72	.11	.85		.41	-.14	.34	.33	.37	.27	.22	-.06	.40	43.
Teacher Rating 2	.44	.14	.03	.25	-.05	.46	.44	.40	.36	.28	.31	.29	.22	.38	.19	.56	.41		-.10	-.05	-.11	.68	.68	.60	.47	.57	44.
Ins Time Read	.14	.05	.25	.17	.60	-.36	-.34	-.14	-.13	-.32	-.34	.29	-.08	-.13	.17	-.04	-.14	-.10		-.19	.69	-.27	-.15	-.06	.18	-.09	45.
Ins Time Supp.	-.21	-.01	-.28	.06	-.16	-.18	-.04	-.28	-.05	-.16	-.07	-.26	-.21	.30	.03	.38	.34	-.05	-.19		.58	-.18	-.27	-.24	-.23	-.10	46.
Ins Time Total	-.04	.03	.00	.18	.38	-.43	-.32	-.32	-.15	-.39	-.34	.05	-.22	.24	.15	.46	.33	-.11	.69	.58		-.36	-.32	-.22	-.02	-.15	47.
Stan 1 Wrd Read 2	.28	.24	.02	.12	-.20	.83	.79	.37	.75	.70	.53	.47	.53	.30	.38	.44	.37	.68	-.27	-.18	-.36		.88	.68	.67	.86	48.
Stan 1 Par Mean 2	.22	.17	.16	-.01	.00	.80	.84	.48	.63	.57	.68	.56	.64	.13	.21	.34	.27	.68	-.15	-.27	-.32	.88		.80	.78	.86	49.
Stan 1 Voc 2	-.04	-.04	.10	.22	.05	.51	.53	.47	.39	.35	.49	.52	.52	.08	-.05	.23	.22	.60	-.06	-.24	-.22	.68	.80		.66	.76	50.
Stan 1 Spell 2	.15	.22	.10	.03	.24	.57	.70	.25	.69	.45	.48	.79	.58	-.23	.31	.10	-.06	.47	.18	-.23	-.02	.67	.78	.66		.71	51.
Stan 1 Wrd St 2	.10	.08	.06	.17	-.16	.71	.75	.31	.72	.65	.54	.49	.58	.25	.13	.45	.40	.57	-.09	-.10	-.15	.86	.86	.76	.71		52.

Table 62

IQ and Sex Grouping of Paragraph Meaning Sub-Test, Stanford Achievement Battery - Primary II-
Mean Raw Scores-May 1966- 2nd Grade
(Bright and dull groups were selected by Pintner-Cunningham raw scores.so that the breaks came at whole raw score intervals. The lowest Bright student scored 44. The highest Dull student scored 36. This gives 32% in the Dull group; 37% in the Average group and 31% in the Bright group)

Groups	DMS	TO	ITA	All Methods
Dullest Boys	17.5	22.9	22.9	21.1
Average Boys	27.8	36.9	34.3	33.0
Brightest Boys	35.2	35.8	37.2	36.1
All Boys	26.8	31.9	31.5	30.1
Dullest Girls	22.1	24.1	25.1	23.8
Average Girls	25.9	33.5	34.9	31.4
Brightest Girls	35.7	40.1	40.8	38.9
All Girls	27.9	32.6	33.6	31.4
All Dullest	19.8	23.5	24.0	
All Average	26.8	35.2	34.6	
All Highest	35.5	38.0	38.5	
All Children	27.4	32.3	32.6	30.8

Analysis of Variance

Source	df	SS	MS	F	Sig
Total	338				
Teaching Method	2	100.70	50.35	9.97	.01
Sex	1	7.67	7.67	1.51	
IQ	2	698.62	349.31	67.19	.01
Method by Sex	2	1.59	.80	.16	
Method by IQ	4	30.42	5.11	1.00	
Sex by IQ	2	18.43	9.22	1.83	
Method by Sex by IQ	4	9.64	2.41	.48	
Error	321	1620.78	5.05		

PHONETICALLY REGULAR WORDS ORAL READING TEST

(1966 Version)
By: Edward Fry, Rutgers University
New Brunswick, N. J.

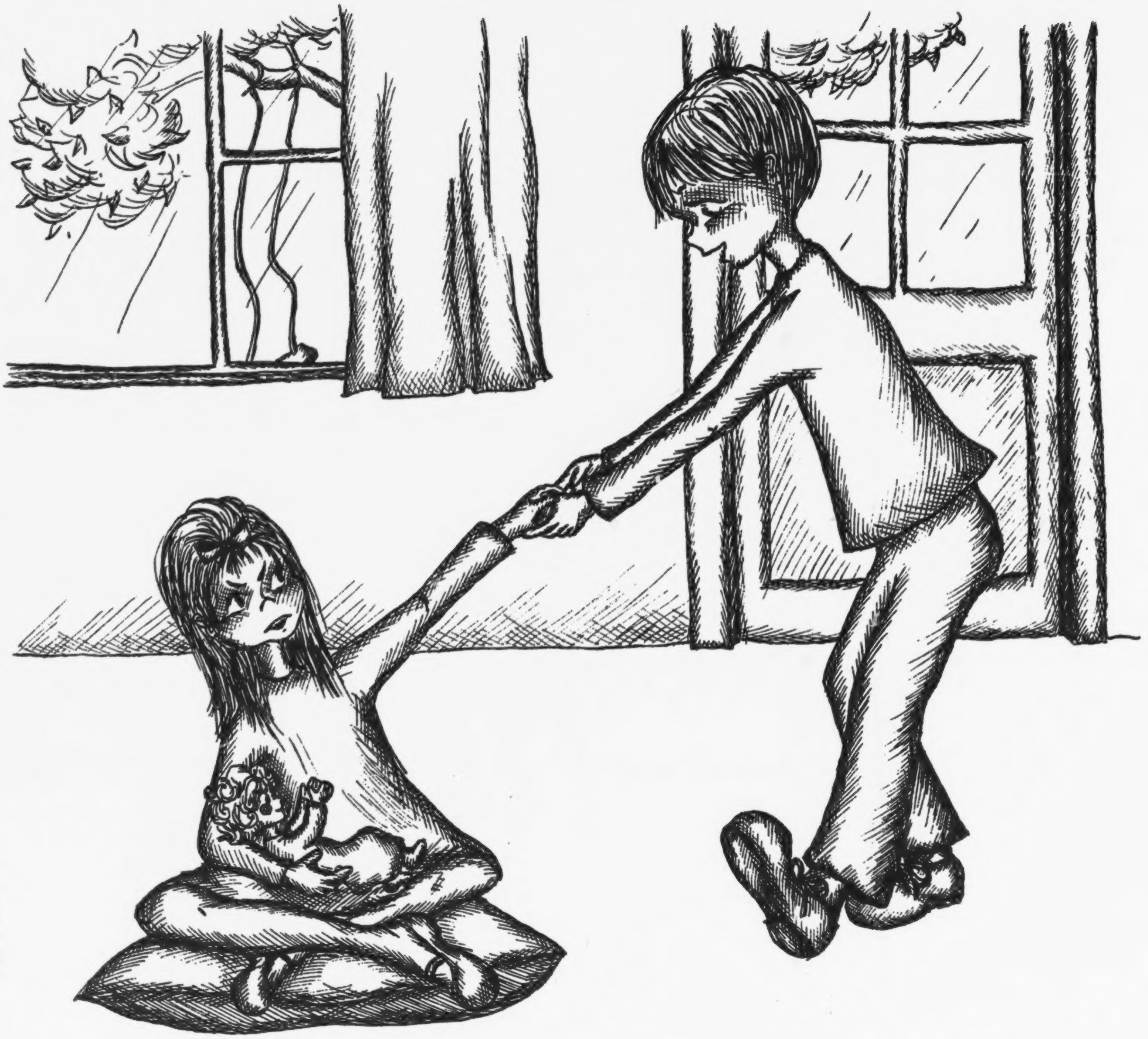
Child's Name______________________________ Date:________________

School______________________ Room__________Code Number______

Examiner__________________Number of words read correctly_______

1. nap
2. pen
3. hid
4. job
5. rug
6. shade
7. drive
8. joke
9. mule
10. plain
11. hay
12. keen
13. least
14. loan
15. slow
16. stalk
17. haul
18. jaw
19. soil
20. joy
21. frown
22. trout
23. term
24. curl
25. birch
26. rare
27. star
28. porch
29. smooth
30. shook
31. yoke
32. glory
33. shy
34. quaff
35. taught
36. bundle
37. nix
38. civic
39. Philip
40. preach
41. cracked
42. swish
43. frankfurter
44. twelfth
45. drowse

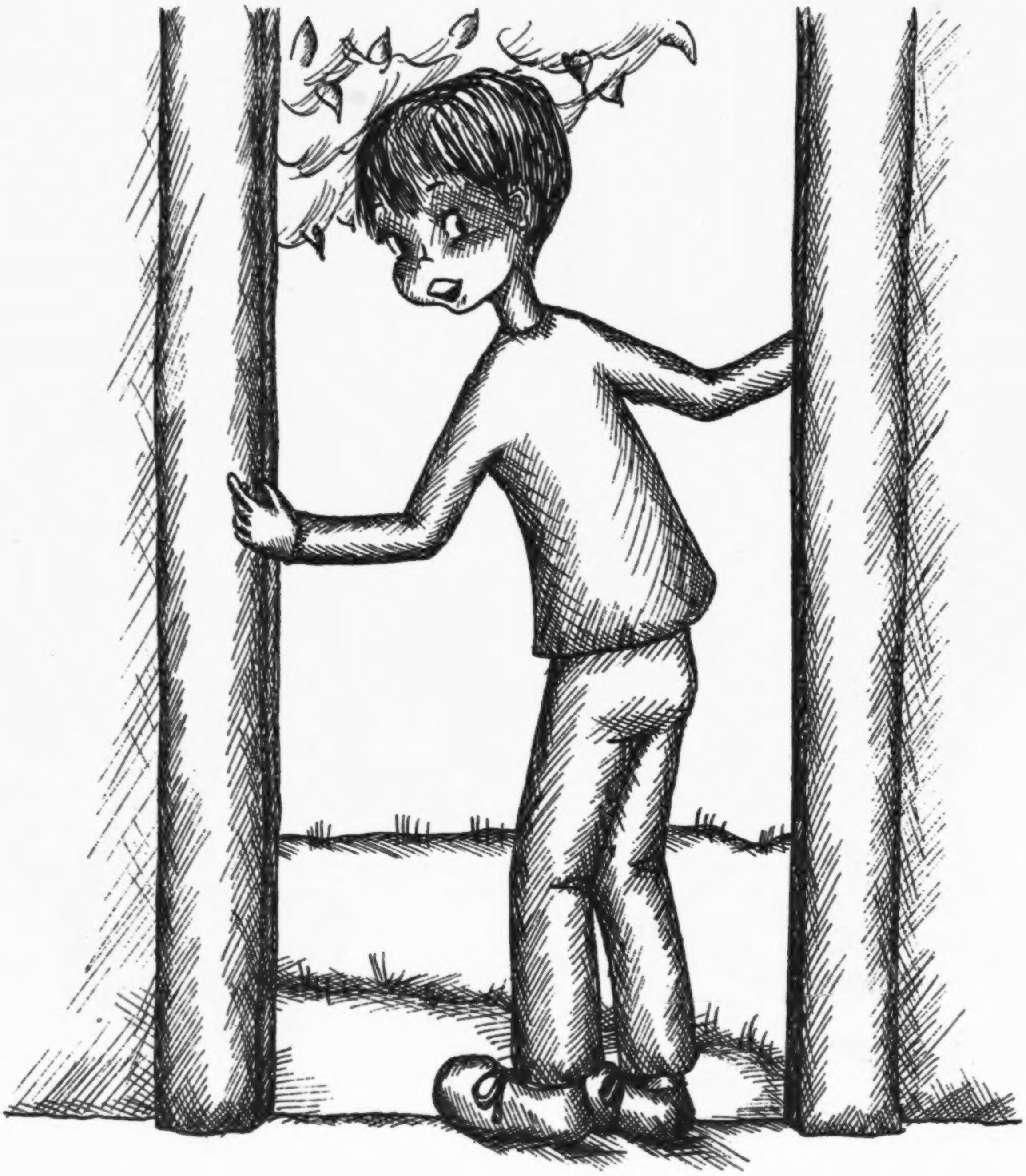
DIRECTIONS: Have pupil read words from one copy while examiner marks another copy. Do not give pupil a second chance but accept immediate self-correction. Let every student try the whole first column. If he gets two words correct from word number six on, let him try the whole second column. If he gets three words correct, let him try the whole third column. Mark correct words (C) and incorrect words (X).



Sȯme̸thing fôr Shelle̸y and Carl

"Cȯme̸ swing with mē, Shelle̸y,"
sa̱i̸d Carl.

"Let gō of mē, Carl.
Y̸o̸ū can't get mē to swing with y̸o̸ū.
Y̸o̸ū can't māke̸ mē gō out there̸."



"Cỏm~~e~~ on, Shell~~e~~y," sa~~i~~d Carl.

"Ther~~e~~ is sỏm~~e~~thing on the swing.

This is trü~~e~~.

Ī sē~~e~~ sỏm~~e~~thing ther~~e~~.

Cỏm~~e~~ ōv~~e~~r hēr~~e~~ qui~~c~~kly,

and ~~yo~~ū can sē~~e~~, tö~~o~~.

Cỏm~~e~~ out with mē, but dōn't run."